

AMERICAN BEE JOURNAL

JANUARY 1922

JAN 2 1922

UNIVERSITY OF MINNESOTA
Department of Agriculture



ONE OF CARL F. BUCK'S KANSAS APIARIES IN A SWEET CLOVER DISTRICT.

A HAPPY NEW YEAR TO YOU

Our 1922 catalog will be ready in January. Mail a
list of your requirements for our special
quotations

THE FRED W. MUTH CO., Cincinnati, O.

THE DIAMOND MATCH CO.

(APIARY DEPT.)

MANUFACTURERS OF

Beekeepers' Supplies

CHICO, CAL., U. S. A.

Dadant's incomparable Foundation
is always kept in stock. Western
Beekeepers can be supplied advantage-
ously.

BEEKEEPERS, wherever they may be located, before de-
ciding where to obtain supplies, should write to the
Diamond Match Co. for prices and for their Beekeepers'
Supply Catalog.

This Company are the largest manufacturers in the world
who make Bee Supplies. They own their own timber lands,
mills and factories, and supply goods direct from the tree to
the beekeeper.

Full advantage of this low cost of production is given to the
purchaser.

The Apiary Department (which is in charge of experienced
supply men, who are also practical beekeepers) maintains a
constant excellence of product and offers unsurpassed ser-
vice.

ALUMINUM HONEYCOMBS

The Diamond Match Co. and their agents are the sole dis-
tributors in the United States of the Aluminum Honeycombs,
manufactured by the Duffy-Diehl Co., Inc., of Pasadena,
Calif. Write for descriptive pamphlets. Eastern beekeep-
ers should send their orders for the Diamond Match Co.'s
supplies to Hoffman & Hauck, 1331 Ocean Avenue, Woodhaven, N. Y.

DIAMOND MATCH CO., Apiary Department
CHICO, CALIFORNIA

CONTENTS OF THIS NUMBER

Honey Plants of Kansas—J. H. Merrill	7
Germany Sends Bees to Belgium.....	10
That Early Blooming Sweet Clover	10
Problem of Disease Control—Frank C. Pellett	11
English Hives—R. B. Manley.....	11
Editorials	12-13
Bees at the Iowa College of Agriculture	14
Direct Marketing of Honey—G. W. York	16
Marketing Situation—Major Nordan	16
Why Extracted Honey Should be Heated—E. G. LeSturgeon	16
Know Your Market—H. B. Parks.....	17
To Popularize Extracted Honey—A. G. Graham	17
Building a Home Market—L. H. Cobb	17
A Safe Entrance Guard—Daniel Danielson	18
Unedited Letters of Huber	18
From Adam to Diamond Match.....	20
Late Introduction of Queens—W. H. Lewis	20
Using Census Figures—Charles Reyn- ders	20
Bumblebees as Pollinizers—J. Wm. Cockle	21
Package Standardization	21
German Organizations	21
Killing Hornets—G. W. Moore.....	22
A Novel Advertisement	22
Some Reflections—S. J. Harmel- ing	22
Cleaning Wet Combs; Queen Intro- duction—E. M. Cole	22
Small or Large Brood Chambers— John Protheroe	23
Is the Box Hive a Menace?—Major Shallard	24
Getting Rid of Box Hives—Wm. Kernan	24
Farthest West in British Columbia —Lillian E. Bland	24
An Old-time Teacher—L. H. Pam- mel	25
Contributions to the Miller Fund.....	25
Letters From a Novice	26
League Notes	27
Editor's Answers	27-28
January Conventions	29
News Notes	29-30

Lewis 4-Way Bee Escapes



Four exits from supers. Fits all standard boards.
Springs of coppered steel. Made of substantial material. Price each 18c, postpaid

Made by

G. B. LEWIS COMPANY,
Watertown, Wis., U. S. A.
Sold only by Lewis "Beeware"
Distributors.

NEW BINGHAM BEE SMOKER

PATENTED



BINGHAM BIG SMOKE SMOKER

Wins contest at New York State
Beekeepers July meeting

Gilbertsville, N. Y., Oct. 3, 1921.
A. G. Woodman Co.:

Last winter I bought a copper Big Smoke Smoker, with shield, of you, and in July took the same to the Chenango County beekeepers' picnic and entered the smoker contest. There were nine contestants and the Big Smoke won the prize, which was a fine queen bee. Needless to say, I was very proud of the victory. They gave us one minute, and at the expiration of thirty-five minutes the Big Smoke was the only one burning. They called it a "Steam Boiler." However, it won, and I thought I would inform you.

C. F. Bushnell.

Buy Woodman Section Fixer

One of our men with the section fixer puts up 500 sections with top starters in one hour and thirty minutes; 500 sections set up with top starters in ninety minutes. This includes the labor of cutting foundation, getting sections and super, and placing the sections into the supers and carrying them away. A complete job. This is nothing unusual, but his regular speed. You can do the same if you have the push, after you become accustomed to the work. There is no breakage of sections. It will pay you to secure one of these machines for this work. It is the best thing of the kind on the market.



Size of Shipping
stove. weight.
inches lbs.

Big Smoke, with shield 4 x 10	3
Big Smoke, no shield 4 x 10	3
Smoke Engine 4 x 7	2 1/4
Doctor 3 1/2 x 7	3
Conqueror 3 x 7	1 1/4
Little Wonder 3 x 5 1/4	1 1/4

SPECIAL SALE ON HONEY PACKAGES

Friction top pails in the 5-pound, at \$7 per crate of 100; \$13 for crates of 203; the 10-pound size at \$11.30 for crates of 113. Special prices on 60-pound cans, one-gallon square cans and other sizes.

A. G. WOODMAN CO.
GRAND RAPIDS, MICH., U. S. A.

A SUPERIOR QUALITY
AT LESS COST

SUPPLIES

A SUPERIOR QUALITY
AT LESS COST

MADE BY THE DIAMOND MATCH CO.

ONE STORY DOVETAILED HIVES COMPLETE

with Diamond Cover and Bottom Board. Hoffman Frames, metal rabbets and all inside fixtures

Crates of five, 8-frame	- -	\$10.50
Crates of five 10-frame	- -	11.00

STANDARD HOFFMAN FRAMES

100	-----	\$5.50
500	-----	25.00

Aluminum Honey Combs as now made by Duffy-Diehl Co. are meeting with success. We carry these in stock to supply eastern beekeepers.

HONEY HONEY HONEY

Beekeepers who are supplying Honey to a regular family trade, or who are located along the highways, and are supplying motorists, know that their customers want a honey of a uniform color and flavor.

And unless the Honey is at all times uniform in color and flavor, customers sometimes become dissatisfied.

Our special blend of fancy Honeys (liquid) is always uniform and is of a fine, mild flavor, and will satisfy the most exacting trade.

SPECIAL BLEND OF FANCY HONEY (LIQUID)

10 lb. Tins, 6 per case	-----	16c lb.
5 lb. Tins, 12 per case	-----	17c lb.
2½ lb. Tins, 24 per case	-----	18c lb.

VARIOUS GRADES (CRYSTALLIZED)

Water White Orange	-----	14c
Water White Clover or White Sage	-----	13c
Extra Light Amber Sage	-----	11c
N. Y. State Buckwheat	-----	10c

GLASS AND TIN HONEY CONTAINERS

3½-lb. cans, 3 dozen reshipping cases, \$1.45 case;
crates of 100, \$5.00
5-lb. pails (with handles), 1 doz. reshipping cases \$1.35 case;
crates of 100, \$7.75

10-lb. pails (with handles), ¼ doz. reshipping cases, \$1.10 case; crates of 50, \$5.75

60-lb. tins, 2 per case—new, \$1.30 case; used 25c.

WHITE FLINT GLASS, WITH GOLD LACQD. WAX LINED CAPS

8-oz. honey capacity, \$1.50 per carton of 3 doz.
16-oz. honey capacity, \$1.40 per carton of 3 doz.

Quart 3-lb. honey capacity, \$1.00 per carton of 1 doz.

HOFFMAN & HAUCK, Inc. Woodhaven, N. Y.

DADANT'S

FIFTY YEAR'S OF SERVICE

Before the invention of foundation:

"I have been using Dadant's Comb Guide Press which makes a very thin piece of wax to hang down from the center of the frame or section as a guide. The guide may be made as deep or shallow as you wish. I have found it very practicable, the bees always building to it. It is very quickly and easily applied, being neater, cheaper and less in the way than the wooden guides."

W. A. Byrd in North American Bee Journal, October 1872.

Now after nearly fifty years still in the lead:

Graycroft Farms, Madison Station, Tenn., Sept. 5, 1921

"I should like to add that your Dadant's Brood Foundation is of the most excellent quality I have yet used, both in clearness of wax and excellence of manufacture of the sheets."—P. G. Barnett.

DADANT'S FOUNDATION EVERY INCH, EVERY POUND, EVERY TON EQUAL
TO ANY SAMPLE WE HAVE EVER SENT OUT.

Specify it to your dealer. If he hasn't it, write us

DADANT & SONS, Hamilton, Illinois

*Catalog and Prices on Bee Supplies, Beeswax, Wax Working into Comb
Foundation and Comb Rendering for the asking*

“BEEWARE” PRICES ARE DOWN “BEEWARE” QUALITY STAYS UP

A glance at the new low 1922 retail prices proves our co-operation in
helping American honey producers on to a paying
basis, quality considered

	Jan. 1, 1921.	Jan. 1, 1922.
No. 1 regular beeway sections, per M. -----	\$22.00	\$13.90
1 St. 10-fr. hives with frames, met. cover, KD., 5C -----	26.25	17.25
Metal roof covers, 10-fr. KD., 5C -----	10.75	7.20
10-fr. standard bodies and frames, KD. 5C -----	12.25	7.90
Bottom boards, 10-fr., KD., 5C -----	5.90	3.50
Reg. Hoffman frames, KD., 500C -----	56.00	32.50
Shallow ext. frames, KD., 500C -----	37.00	22.00
Champion hives, KD., and frames, 5C -----	46.67	27.80
Modified Dadant hives, met. cover and frames, KD., 5C -----	32.20	21.60
Lewis 4-way bee escape, each, postpaid -----	.25	.18
Dadant foundation, med. br, 1 lb. -----	1.00	.80
Aluminum honey combs, reg. Hoffman, SU., 10C (Texas) -----	6.00	5.00
Woodman's Bingham smoker, doctor size, each -----	1.40	1.25
Muth's Ideal bee veils, each -----	1.75	1.25
Boardman feeders and cap, each -----	.30	.20
Combless package shipping boxes and feed can, KD. 3-lb., 50C -----	47.50	34.65
Comb honey shipping cases, 1 tier, no glass, KD. 100C -----	87.00	53.15

You will want to see the metal frame shoulder, Lewis wax press, improved metal spacer, electric uncapping knife, improved 4-way bee escape, honey for sale signs, Lewis-Markle 8-frame power honey extractors, parcel post honey mailing cans, improved Lewis cappings melter, etc.

If you did not get our 1921 catalog, ask us for the free 1922 copy



G. B. LEWIS COMPANY

HOME OFFICE AND WORKS

WATERTOWN, WIS., U. S. A.

Distributors throughout the U. S. A.

BRANCHES: MEMPHIS, ALBANY, LYNCHBURG, WICHITA,
DENVER, FROMBERG



VOL. LXII—NO. 1

HAMILTON, ILL., JANUARY, 1922

MONTHLY, \$1.50 A YEAR

HONEY PLANTS OF KANSAS

By J. H. Merrill, Apiarist Kansas State College and Experiment Station

* Contribution No. 70, from the Entomological Laboratory, Kansas State Agricultural College. This paper embodies some of the results obtained in the prosecution of Project No. 126 of the Agricultural Experiment Station.

KANSAS is located in the geographical center of the United States. It consists of a gradually rising slope from the Missouri Valley to the foothills of the Rocky Mountains. Its climate is characterized by wide extremes in temperature, great variations in the seasonal rainfall, an abundance of sunshine with a dry air, and plenty of wind movement.

Rainfall

The annual rainfall in Kansas decreases from 42 inches in the southeastern counties to a little more than 15 inches at the Colorado line. The northern half of the State receives practically the same rainfall as the southern, except that the northeastern quarter receives a little less than the southeastern quarter. From 71 to 78 per cent of the annual rainfall comes during the six crop-growing months—April to September, inclusive—and there are no States in the country, except a few along the gulf coast, that, taken individually, receive as much rain during the summer months as the eastern third of Kansas. The middle third receives over 20 inches of rainfall during these six months, which is within 2 inches of the amount that falls during the same period in Illinois, Indiana, Ohio, New York and the New England States. The western third of the State, usually called the semi-arid region, has a rainfall almost equal during these six months to that of Michigan and Wisconsin.

The altitude varies from less than 1,000 feet in the eastern portion to

well above 3,000 feet in the western portion. The area included in the section below 1,000 feet lies chiefly in the southeastern part of the State, and in the river valleys along the Kaw and Missouri Rivers. In the Kaw Valley this lower area extends west from Kansas City for about 100 miles. The central portion of the State is between 1,500 and 2,000 feet. This area is fairly well defined from the north to the south. The three western tiers of counties are practically all above the 3,000 feet level.

Soils

The soil of northeast Kansas, extending west for 20 or 30 miles, is the loess soil. Glacial soils extend west of this line as far as the Blue River and south of the Kaw River. Southeastern Kansas soils have been

formed from shale and are not adapted to leguminous plants. West and north from the southeastern corner of the State, shale decreases and limestone becomes more prominent in the form of soil. Throughout the central section are found most of the soils formed from a mixture of sandstone, limestone and shale, and are well adapted to clover and alfalfa. In northwestern Kansas the soils have been formed from the action of the winds and in the southwestern corner the soil is largely due to the outwashed material from the Rocky Mountains. All soils in the central and western parts of the State are high in lime, which is valuable as a plant food.

Owing to the fact that there is such a great range of altitude, soil



An Arkansas Valley orchard in Central Kansas.

formation and amount of precipitation in the State, there is considerable range in the honey plants. Some plants which appear in one section may be absent in another, or if they are present, may produce no nectar at all. In addition to the fluctuations in the nectar yield, there is also a difference in the quality of the honey produced from the same kind of plants when grown in different sections.

In order to secure information on the honey plants of Kansas, questionnaires were submitted to a number of leading beekeepers in representative sections of the State. Information was requested in regard to each plant as to (1) the date of blooming, (2) its value for spring brood-rearing, (3) whether it yielded nectar or pollen, or both, (4) the color of the honey, (5) its quality, and (6) its importance as a honey plant in that locality.

Regional Divisions

Kansas may be divided into four sections as regards its honey plants and beekeeping conditions. The annual rainfall in what may be termed the northeastern and southeastern sections is very nearly the same, ranging from 33 to 43 inches. The conditions found in that section lying west of the Missouri River and south to and including the Kaw Valley are different from those found in any other part of the State. Along the Missouri River is found a loess soil and this extends west for about one-half of the district, where the soil becomes glacial. The portion of this section in which the loess soil is found is particularly adapted to fruit growing. This furnishes considerable nectar and pollen for the bees in early spring. Maple and elm are quite abundant along the river valleys in the northeast section. Soft maple furnishes both nectar and pollen, while elm is valuable for pollen for spring brood-rearing. Dandelion is quite generally abundant over all of this section, and coming in bloom as it does soon after the maple and elms, it is a very material help in building

up strong colonies. After the dandelion come the cherry, plum, peach, pear and apple, and these are followed in turn by the small fruits. White clover is of importance only in this northeast section. It is found blooming in other sections, but is not valuable as a honey plant. Even in this section it is variable.

Frank Hill, of Nemaha County, reports that white clover is a good yielder in his locality, and he is not sure whether it exceeds sweet clover in value as a honey plant, yet he is certain that when it does yield, it outyields sweet clover.

C. B. Baxter, of Leavenworth County, observed that white clover produces well during the year following "a wet year which follows a dry year." He further adds that although fields may be white with clover, it does not always produce nectar. The beekeepers in several of the counties in the northeast section place white clover as being the most important honey-producing plant, with sweet clover second, while others reverse this. During the summer of 1921 as high as 200 perfect sections of white clover honey per colony were produced in Douglas County.

Alsike clover does well wherever it is grown in the northeast section. However, there is not enough of it planted at present, but its importance is becoming recognized more and more. Later appearing plants which are valuable are the basswood, Spanish needle, goldenrod and heartsease. The heartsease, especially, is a heavy producer, enabling the bees to store enough honey in the hives for the winter. This northeast section, as has been shown, has maple, elm, dandelion and fruit bloom to help in spring brood-rearing. These are followed by white clover, sweet clover and alsike, which provide the main honey crop, and the supplies for winter are furnished by goldenrod, Spanish needle and heartsease. Although considerable alfalfa is produced in this section, it does not, ordinarily, produce any nectar.

The Southeast and Central Sections

The reports of the honey plants in the southeast section are not as complete as those of the northeast, probably due to the fact that there are fewer beekeepers in that section. The soil in this section is formed from shale and is not adapted to leguminous plants. Spanish needle is reported from two counties to be the most important honey plant, followed in importance by sweet clover, heartsease in the western part of the section, and by persimmons in the eastern part. Goldenrod and heartsease furnish the bulk of the late honey.

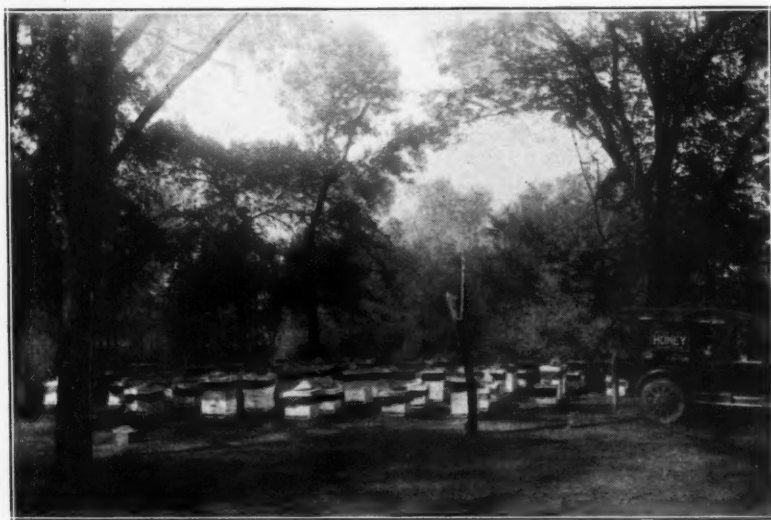
The central part of the State includes that portion which lies between the 1,000 feet altitude on the east to the 2,000 feet altitude on the west. The rainfall in this section varies from 21 to 31 inches, while the soil is formed from a mixture of sandstone, limestone, and shale, and is well adapted to the growing of leguminous plants. The majority of the beekeepers in the State are to be found in this section. The beekeeping conditions are very favorable, especially in the river valleys, among the most important of which are the Arkansas, Kaw, Blue, Verdigris and Solomon.

In these river valleys are found maple and elm, followed by dandelion, which all help to build strong colonies for the summer's work. Considerable fruit is grown in this section, especially in the Arkansas Valley. The bees have been known to store surplus honey from apple bloom. Yellow sweet clover is the first plant of importance for the main crop. In about three weeks this is followed by the white sweet clover, then comes the alfalfa. Throughout this section alfalfa is the most important honey plant found. It is closely followed in importance by sweet clover, while heartsease ranks about third, and dandelion fourth. There are many plants which are of minor importance when their value to the whole section is considered.

The West End Regions

The western section varies in altitude from 2,000 feet on the eastern border to over 3,000 feet on the western. The western part of the State is in the foothills of the Rockies. The soil in the northern part of this section is formed by the action of the winds, while the southern part is composed of soils washed down from the Rocky Mountains. Both sections contain a high percentage of lime.

This is what is popularly, or rather unpopularly, known as the "short grass" region of Kansas, yet large areas are at present under irrigation and yield heavy crops of alfalfa, sweet clover, sugar beets and cantaloupes. In the Arkansas Valley the water is so near the surface that the long alfalfa roots penetrate sufficiently to reach it, and considerable alfalfa is raised in the valleys, even where there is no irrigation. In the western part of this section the Rocky Mountain bee plant, which is a very valuable honey plant, is found growing in profusion. Some of the largest apiaries in the State are located



Outyard belonging to Frank Hill, of Sabetha, Kansas.

in this western section. As alfalfa and sweet clover are the two main crops, the drawback to this section is that it is deficient in spring honey plants. Consequently, it is necessary to leave a large amount of honey in the hives in the fall. Owing to the fact that practically all of the honey is produced from two kinds of flowers, the quality of the honey is more nearly uniform from year to year than in any other section of the state.

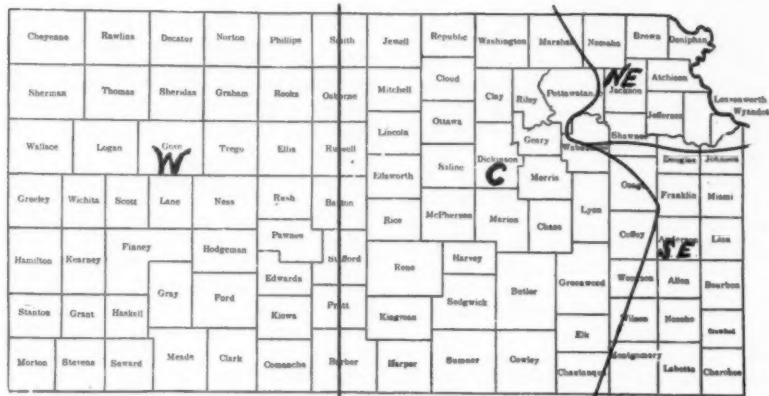
Nectar and Pollen Sources

Alfalfa (*Medicago sativa*) blooms about June 1st. Alfalfa is at present the most important honey plant found in Kansas. Of 26 replies received from beekeepers in various parts of the State, 10 reported alfalfa as being of first importance; 4 placed it second; 1 listed it as an occasional yielder, while in 11 counties, although alfalfa was grown in some of them, it was reported as yielding no nectar.

Mr. Arthur V. Small, of Augusta, Kansas, in the American Bee Journal, made the statement that alfalfa does not yield nectar in Kansas below 1,000 feet altitude. At a meeting of the beekeepers held in Manhattan, this statement was slightly changed by Mr. Small so that it now reads: "Alfalfa produces nectar under proper climatic conditions, and the climatic conditions are those ordinarily found at above 1,000 feet elevation."

Considerable alfalfa is grown in the northeast section, but it is only where the climatic conditions are similar to those found in the central section that the bees are found working on this plant. The alfalfa honey is of very fine quality, light in color, mild in taste, and as is usual with alfalfa honey, granulates very rapidly. Alfalfa honey is water-white in color at Lamar, Colorado. As we go eastward we find that alfalfa honey at Garden City, Kansas, is white, while at Mt. Hope and the eastern part of the central section it is light amber. Although it varies in color, its quality is excellent wherever found.

White sweet clover (*Melilotus alba*) becomes of importance in June and July. It was reported of first im-



Honey plant regions of Kansas.

portance in 7 counties; of second importance in 11, and was not reported at all from 8 counties.

Although alfalfa is at present rated as more valuable than sweet clover as a honey plant, it probably will not long hold this position, due to two reasons: (1) Because sweet clover yields nectar wherever it is found in Kansas; (2) because the acreage devoted to the raising of sweet clover is being rapidly increased, owing to recognition as to its value for a soil builder and a forage crop. The honey produced from sweet clover is very light in color and does not change color in different parts of the State. It is very mild to the taste, and, like alfalfa, granulates rapidly.

Yellow sweet clover (*Melilotus officinalis*) blooms two to three weeks earlier than the white sweet clover, and is especially valuable on account of this fact, because it blooms at a time when practically no other honey plants are in bloom. The amount of yellow sweet clover is being increased from year to year.

White clover (*Trifolium repens*) blooms the last of May and the first of June. This is of value as a honey plant only in the northeast section, while it is found on the lawns as far west as Finney and Kearney Counties. The high yields which are re-

ported from this flower indicate that it is very valuable where it does produce nectar. Where the white clover yield is heavy, it is possible to produce comb honey in paying quantities. The honey from this plant has the usual high quality that is found in white clover elsewhere.

Heartsease (*Polygonum sp.*) blooms from August until frost. This plant is quite generally found over the northeast, southeast and central sections, but it is not of importance in the western section. It is usually a very heavy yielder unless it is cut short by a very heavy frost. Heartsease honey in those sections of the State where alfalfa produces nectar is dark, very strong, and not at all pleasant to most tastes. In those sections of the State where alfalfa produces no honey, the heartsease is lighter in color, milder and better flavored. This is undoubtedly due to the fact that in those sections where alfalfa yields nectar, the variety of heartsease which produces dark, strong honey predominates, while in the other sections of the State the heartsease honey is obtained mostly from another species of this plant.

Alsike clover (*Trifolium hybridum*) blooms in July. This plant does well in the northeast section of the State where the rainfall is too great for alfalfa to produce nectar. It does well and could, and probably will, be planted more generally in the future.

Dandelion (*Taraxacum officinale*) begins to bloom the first week in April. It is found mostly in the northeast and east part of the central sections. This plant is of great value in spring brood-rearing. The honey produced from it is wholly consumed for this purpose.

Basswood (*Tilia americana*) blooms the middle of June. This tree is found in some of the river valleys in the northeast section and is valuable, but its distribution is very limited.

Goldenrod (*Solidago*) blooms from August until frost. While several varieties of goldenrod are found in Kansas, it is reported of importance from a few of the counties in the southeastern sections.

Spanish needle (*Bidens*) blooms



Alfalfa field in western Kansas.

the middle of August and is a very important honey plant along the entire eastern border of the State of Kansas.

Fruit bloom: Cherry, plum, peach, pear and apple are valuable in the northeast section, and in the river valleys in the central section. These trees come into bloom early in the spring. They produce both pollen and nectar and are of great value in spring brood-rearing. In apiaries which are located near some of the large orchards, considerable surplus honey has been stored during the apple-blooming period.

Soft Maple (*Acer saccharinum*) blooms in February and March, and is one of the first sources from which the bees may obtain both nectar and pollen. The soft maple is found quite generally over the northeastern and central sections of Kansas.

Elm (*Ulmus*) blooms in February and March. Very valuable for spring brood-rearing, as it produces large quantities of pollen. This tree also is quite generally found in the northeast and central sections of the State.

Box elder (*Acer negundo*) blooms in April and May. It is very generally found over the State, and produces both pollen and nectar.

In addition to the above named honey-producing plants, there are quite a few others which although they are important in the locality in which they are grown, are not extensively enough grown to be of importance over the whole State. Among these are:

Persimmon (*Diospyros*) blooms in June, reported of importance only in Cherokee, the southeast county of the State.

Aster (*Aster*) blooms from August until frost. Scarce and unimportant.

Black locust (*Robinia pseudacacia*) blooms in May. Valuable in river valleys.

Cantaloupes (*Cucumis melo*) bloom in June and July. Of importance in western Kansas.

Sumac (*Rhus*) blooms in July. Important in the northeast and central sections of the State, producing a good quality of light honey.

Horsemint

Horsemint grows in abundance in the Arkansas Valley in the vicinity of Hutchinson, and extends west as far as Larned. On the south of the river it is found on the upland, where the soil is of a sandy or gravelly nature, which is the only type of soil on which it is found in that vicinity. The time of blooming is the 15th of May to the 1st or 6th of June. This bloom is sometimes cut short by dry weather. The most favorable condition is plenty of moisture while growing, then hot weather with light showers. In the last ten years this has yielded four good crops of honey, averaging from 10 to 15 pounds per colony. The honey produced from this plant is a very light amber, light in body, and has the pronounced mint flavor, which is so strong that it cannot be classed as a number one honey. However, when blended with the milder honeys, it is very much in demand. The plant has no value as

pasture, for stock will not eat it, consequently it is considered as a pest.

Beekeeping in the State

In the northeast section, owing to the abundance of spring flowers which produce both pollen and nectar, it is possible to build up strong colonies ready to take part in the summer honey flow. This section of the State is particularly adapted to the raising of comb honey, as the flows from white clover and heartsease are usually very intense. There are some very good beekeepers in the northeast section, but there is still room for others. There are probably more beekeepers in the central section of the State than in any of the other four, and while it is possible to produce comb honey in paying quantities, yet, as the honey flows are long and not so intense, this section is better adapted for the production of extracted honey.

In the western section of the State the honey flow from alfalfa is long, and at times very intense, making it profitable to produce either comb or extracted honey. As there is a dearth of spring plants in this section, beekeeping practices have to be modified somewhat so as to leave plenty of pollen and honey in the hive in the fall to last the bees until spring.

Kansas has several beekeeping societies, the most important of which are: The Kansas State Beekeepers' Association, the Eastern Beekeepers' Association, and the Arkansas Valley Beekeepers' Association. It also has the Kansas Honey Producers' League, which organization is a member of the American Honey Producers' League.

The interest shown in better beekeeping is becoming greater and greater, and as Kansas has so many natural facilities for beekeeping, the outlook for the future of this industry is very bright.

GERMANY SENDS BEES TO BELGIUM

The gathering together, at Anhorn, Oldenburg, North Germany, of 1,700 colonies of bees in straw skeps, for shipment to Belgium. The party

in front is composed of Mr. Leon Tombu, already known to our readers (3rd from left), his secretary (right) and the two other members of the committee. The location is in the middle of a heather field. On the day of shipment, 3,600 colonies were gathered together in that spot.

THAT EARLY BLOOMING SWEET CLOVER

It is too soon yet to expect reports on the early blooming biennial sweet clover of which several hundred packages of seed were sent out from this office last spring. The particular merit of this strain lies in the fact that it blooms two or three weeks ahead of the ordinary strain of sweet clover and the stems are not so coarse, making it more desirable for forage. To our surprise, several beekeepers have written to state that blooms did in fact appear the past season, although the plant is supposed to be a biennial.

These reports were referred to F. E. Longmire, Farm Adviser of Grundy County, Illinois, where this strain apparently originated. He replies as follows:

"Your letter of October 19 at hand and has been delayed due to looking up a little information on the case of Grundy County sweet clover blooming the first fall.

"This is a surprise to me; however, in talking with some of our men who have this clover that was seeded this year and has been in a favorable place with rich soil and proper moisture, the clover has made such an unusual growth this fall that a few blossoms have occurred. This is an unusual habit. It is the first season I have heard of it happening. However, I would judge that it is a case due to a favorable forcing season, comparable to red clover, mammoth clover and alsike clover, which frequently bloom the fall of the year in which they are seeded, when conditions are favorable.

"I am quite sure that there is no true annual Hubam seed in the seed



Bees in skeps ready for shipment from Germany to Belgium.

that was sent you, for the clover has all been grown here in this county several years and has been watched rather closely. I think if you will advise your men to keep close watch on this clover that they will find it all bloom and seed profusely next year. We have had some extremely heavy seed yields in this strain of clover—12, 14, 15 and 16 bushels per acre. We have a lot of good seed, although not nearly so much as we had a year ago. We have a large number of fields that were seeded in the county this year and are showing up beautifully. I note the last few days that this clover is beginning to carpet down snugly to the ground. It seems to be a peculiar habit of this clover just previous to going into the winter.

"I feel sure that if your men will give this clover a proper chance it will be one of the best bee plants they have ever known. Mr. L. L. Ness, of Morris, has been seeding a lot of this strain of clover along the new concrete highway where they have finished grading the road, and expects to increase his pasturage facilities in that way. I presume that you know of Mr. Ness, as he is a very prominent beeman, having several hundred colonies, and produces a great deal of honey. F. E. Langmire."

Among the interesting letters received concerning the various samples of seed sent out for trial is one from J. W. Ware, of Puyallup, Wash, who is experimenting with honey plants suited to his region. He writes that early blooming sweet clover, or Grundy County sweet clover, as it is called in Illinois, began blooming about the same time as the Hubam, but that it grew much more luxuriantly. He also had the old strain of sweet clover, which grew much larger than either of the others. Mr. Ware has succeeded in securing a continuous bloom from May to December by means of the various strains of white and yellow sweet clover.

If the beekeepers will take a little pains to scatter the seed of the different strains in places where sweet clover is occupying waste land the blooming season can be greatly extended. An addition of even a week or two of good honeyflow will add materially to the crop.

The early-blooming sweet clover should not be confused with the Hubam annual sweet clover. We have sent out many samples of both from this office. Both are likely to prove valuable alike to the farmer and the beekeeper.

THE PROBLEM OF DISEASE CONTROL

By Frank C. Pellett

In spite of all our laws and all our inspectors, bee diseases are rapidly spreading. In the old days, when there was little movement of bees and honey from one locality to another, diseases spread very slowly. Now that bees are shipped by carloads from one place to another, and honey is shipped every day in the year, disease is

spreading like wildfire, and will shortly be found in every important honey-producing region.

There is much dissatisfaction on the part of beekeepers in many places and often much bitterness is manifested. While, as a rule, the inspectors are using their best efforts to check the disease, they are severely criticised. Beekeepers should consider the difficulties under which they are working and not expect too much. On the other hand, the inspectors are often sensitive and take personal offense when suggestions are offered that the only hope lies in a change of method of attack.

A British Columbia beekeeper has recently written us to give some history of the efforts at disease control in that Province and to say that little result remains to show for all the effort. He states:

"In the year 1917, European foulbrood broke out in a large number of apiaries and at widely-scattered points. As the treatment for the disease at that time was the destruction of the colony, it was keeping the inspectors busy burning up frames and bees. The malady spread, in spite of the burning, and kept on spreading until the whole of the lower mainland was badly infected."

"In 1919 a tax was levied on all beekeepers, which called for the payment of a registration fee of \$1.50 for one hive, up to five, and after that of 25 cents per colony, with a maximum of \$5. Five new inspectors were placed on the payroll, making 8 in all. These were deemed to be sufficient to make a thorough job of the inspection work. European foulbrood is still doing business at the old stand, with quite a number of new converts."

He further states that it has been decided to abandon inspection, remove the tax and establish demonstration apiaries.

It will be noted that the beekeeper above quoted discusses European foulbrood entirely. In this connection we quote from a paper by E. F. Phillips, in the August number of the *Journal of Economic Entomology*:

"To overcome the deficiencies of a European foulbrood region requires good beekeeping, and good beekeeping cannot be made by the exercise of police power. It has been shown most clearly that rigid inspection provisions and the usual State laws are not of the slightest value in combating European foulbrood. The making of good beekeepers is so obviously a matter of education that it seems foolish to continue longer to try to control this disease by the enactment or enforcement of legislation."

While there is a great difference of opinion as to the value of inspection work, in dealing with American foulbrood, there are no longer many who advocate inspection for European foulbrood. At best the inspector can only be of assistance in teaching the unfortunate owner of the bees how to improve his methods.

American Foulbrood

Unless the inspectors are very thorough in their work and have suf-

ficient funds to enable them to examine all the bees in the localities visited, results are likely to be disappointing in dealing with American foulbrood, also. Where the beekeeper is not experienced in treating disease he often does more harm than good when he attempts treatment. This being the case, it is highly important that proper instruction be given the novice before he is encouraged to attempt treating his colonies.

ENGLISH HIVES

By R. B. Manley

The interesting letter on pages 454-455 of your November number seems to call for a few comments.

Your correspondent says that the idea of the British beekeeper is to take all the honey in the fall. This statement cannot be said to be strictly accurate. The British beekeeper's principal difficulty is that he is working with what is virtually a toy frame. If a larger frame was used here less would be heard of feeding. Nine men out of ten find that when they have removed their supers at the end of the season, there is, after a little autumn breeding has been carried on, practically no honey in the hive for winter. Therefore they feed up with sugar syrup.

Now I have done my best of late years to put it before beekeepers here that a much larger frame than the British is necessary. Where the small frame is used, and the queen is confined to 10 or 11 of these, only a small colony can be obtained, and consequently surplus is small. As all the space in the brood chamber is required by the queen right up to the cessation of the honey flow, all the honey is placed in the supers. Of course, it may be argued that a super of honey can be left on, but that is not always desirable, and if a super was left it would often mean that, as in the case of the gentleman mentioned in Mr. Todd's article, the honey produced would be nil, or nearly so.

We want larger frames here. I am sure of it. In the season of 1920, which, in England, was the worst on record, I received approximately 60 pounds average per colony, from stocks in hives of the ordinary American pattern, fitted with frames measuring 16x10 inches. These hives were not packed in any way for 1919 winter, and came out on the average quite 3 weeks more forward in the spring than those wintered in hives known here as "W. B. C." hives.

It may be that I should have done better with even larger frames, such as the "Jumbo." Anyway I shall try these as soon as I can, and see for myself.

Given a large and fairly deep frame and a good wind break, I believe that here in England bees will winter perfectly in unprotected single-walled hives. In fact I know it by experience. My experiments have been with considerable numbers of hives, not merely with one or two.

England.

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language.

Published Monthly at Hamilton, Illinois.

Entered as second-class matter at the Postoffice at Hamilton, Illinois.

SUBSCRIPTION RATES—In the United States, Mexico and Canada, \$1.50 per year; five years, \$6. Other foreign countries, postage 25 cents extra per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

(Copyright 1921 by C. P. Dadant.)

THE STAFF

C. P. DADANTEditor

FRANK C. PELLETTAssociate Editor

MAURICE G. DADANTBusiness Manager

THE EDITORS' VIEWPOINTS

The Miller Memorial Library

The response to the announcement of this committee that the fund collected from Doctor Miller's beekeeping friends would be used to establish a memorial library of beekeeping has been gratifying. As has already been announced, the original fund is not to be spent for books, but only the income shall be used, for this purpose, so that in contributing to this fund, beekeepers are taking part in the establishment of a library to last so long as there are bees and flowers. With this plan it is obvious that as time goes on this library will be increasingly valuable. It is planned to put this library into the care of some one of our leading educational institutions so that the proper care of the books and journals will be positively assured. It may further be pointed out that this memorial library will grow not only from books purchased from the income of the fund, but from books and journals contributed by individual beekeepers.

Several beekeepers' organizations have already contributed liberally to this fund. In most cases the names of individuals contributing have been sent in, so that in the published list of contributors these sums do not appear as association contributions. As there are many meetings to be held in the next few months, the committee would urge that at each one the importance and value of this library be set forth and that every effort be made to enlist the support of beekeepers in attendance. In each case the funds collected should be transmitted through the secretary or some other person indicated to the chairman of this committee.

C. P. Dadant.
E. R. Root.
E. F. Phillips.
E. G. LeSturgeon.
B. F. Kindig.

Beekeeping on the Riviera

The "Eclairer de Nice," in the country of winter roses, announces the formation of a Beekeepers' Association of Alpes Maritimes, with our old acquaintance, Ph. J. Baldensperger, as President. Beekeeping surely should succeed in a district where they can grow the finest flowers out-of-doors, at the time when we are buried

in snow. Nice has a finer climate than the best of our own. And they have made no mistake in selecting their chairman.

Good Roads and Beekeeping

The Twelfth Good Roads Congress and Thirteenth National Good Roads Show will be held in Chicago January 17 to 20.

What has that to do with beekeepers? Indeed we need good roads as badly as anybody. We need them to go to our outapiaries, haul our hives there and haul back our honey. We need them to take our honey to the city. We need them, also, more than ever, if we have our home near a public road much traveled by automobiles, for there is no better way to sell our honey than to have a sign along the road, in sight of the apiary. Let us help the Good Roads Measures and thereby help ourselves.

Bees and Grapes

Do bees injure sound fruit? We already had at least one decision from a jury, in the case of two brothers against each other: Utter vs Utter, at Goshen, N. Y., in which the jury gave a unanimous verdict to the effect that **Bees do not puncture sound fruit.** This was in 1901, and is recorded in N. E. France's pamphlet "Legal Rights."

Here comes now an actual court decision, in Chambery, Savoie, July 7, 1921. We take this from the magazine "L'Abeille," published at Barbary, Aube, France, November number:

"Whereas the report of the expert, whose competence is beyond doubt, demonstrates that the damage evidenced in the vineyard of the plaintiff is caused by the presence of noxious insects other than bees; the latter being unable to pierce the pellicle of grapes, even if their skin is thin, as in the 'Madeleines Royales,' and being only able to suck the juice of the already damaged berries which are destined to rot, therefore causing but insignificant damage, etc.

"Judgment is rendered for the defendant, plaintiff to pay all costs."

Italians Resist Acarine Disease

The British Journal of the Ministry of Agriculture is responsible for the statement that Italian bees are resist-

ant to the acarine mite. The Ministry imported queens, from the best apiaries in the north of Italy, which were introduced into colonies affected with Isle of Wight disease, since supposed to be caused by the acarine mite.

The following quotation is from the above publication:

"It is satisfactory to find that as far back as 1912 the Norfolk expert referred to introduced Italian queen bees into his apiary, which at that time was seriously attacked by acarine disease (also known as Isle of Wight disease) and that the 'crawling' stage, usually a sign that the disease is far advanced, was gradually overcome. Since that time his apiary has been built up until there are 26 stocks in which there is not a sign of acarine disease. This expert has recommended others to adopt the course which he himself successfully pursued. It is stated that they have done so, with wholly satisfactory results."

Freight Rates Reduced

Announcement has recently been made of a reduction in the freight rate on extracted honey from the Pacific Coast to Eastern points. This will put money in the pocket of the Western beekeeper who sells in the eastern markets.

Death of Mrs. Root

We wish to extend to A. I. Root our sincere sympathy on the loss of his companion, Mrs. Root, who died recently at their Florida home, where they had gone to spend the winter months. Her aged husband was not able to return to Medina for the funeral. The Roots are so widely known among the beekeepers that we feel sure thousands of our readers will join with us in this expression of sorrow for Mr. Root and his children.

Chinese Broad Bean a Failure Here

Last spring the American Bee Journal distributed a large number of free samples of the Chinese Broad Bean, which was reported to us as a valuable bee plant in China. Although not all to whom samples were sent have reported, it is apparent that the plant is of little value under our conditions. In most cases the plants grew to a height of about one foot and some of them began to bloom. They were then attacked by a blight or mildew which soon destroyed them. So far no favorable reports have been received.

While it is possible that other valuable honey plants may still be found in other parts of the world, at present it seems that sweet clover is the best thing in sight.

Adulterated Honey

We are advised that an adulterated product is now in the market which is very difficult to detect. By the use of invert sugar mixed with honey on a 50-50 basis, the product has all the appearance and taste of honey and can only be detected by chemical analysis. We urge every beekeeper to keep his eyes open and in case he

learns of such a case or hears of the shipping of invert sugar in large quantity to any bottling concern, that he advise us or the U. S. Department of Agriculture in order that it may be investigated. There is ample law against adulteration, but the culprit must be caught before he is hung.

The Editor Will Attend Eastern Conventions

The senior editor is confined to his home with an attack of bronchitis as this issue goes to press. It is his plan to attend the Massachusetts convention at Boston, January 18, and also, incidentally, the Pennsylvania convention, if his recovery is as rapid as he anticipates. He may find it possible to attend some other meetings, also.

Publicity

We have already called attention to the fact that the newspaper stories about bee diseases are often badly twisted and may do much harm by giving honey consumers a wrong impression. At the Iowa convention Secretary Paddock, in his report, mentioned the prevalence of foul-brood and the difficulties of controlling it. At least one Iowa newspaper in reporting the address stated that the disease is found in honey. To the person knowing nothing about bees this would certainly not be an inducement for him to place honey on his table. The news item in question was headed, "IOWA BEEKEEPERS FACING RUIN." There was nothing in Professor Paddock's address which justified such a scare head.

The Iowa beekeepers have arranged to take advantage of the information service of the Extension Department of the College, and propose to send all news items about beekeeping to this department, to be edited and sent out to the newspapers of the state as far as possible. It is hoped in this way to secure better distribution of news concerning beekeeping activities and at the same time to avoid the many misstatements which so often appear in the press.

We would caution our readers again about giving out news items about bee diseases, because of the tendency of reporters who do not fully understand the matter to make statements to the effect that persons eating honey from diseased colonies are likely to contract disease. Such mistaken notions are getting entirely too common for the good of the honey markets.

Sweet Clover

There is a nation-wide interest in sweet clover just now. The Hubam or annual sweet clover is being boomed as no new plant has been for a generation past. This is a fortunate thing for the beekeeper, for the extension of the acreage of sweet clover is fast making it possible to keep two hives of bees where only one could be kept before. Some are raising a question as to whether the new variety is really superior to the old biennial white. Whether the

one or the other is finally judged to be the best, the beekeeper is bound to profit by the boom, for all varieties of sweet clover yield nectar freely. The American farmers are becoming convinced that sweet clover has a place on the farms as a soil builder if for no other reason. Beekeepers who have not already done so will do well to give the new variety a trial and help to introduce it into localities where it is not already known.

Bees in Cities

The newspapers of the country have widely circulated the account of the Kansas City court upholding the right to keep bees in the city. Time and again cities and towns have passed ordinances prohibiting the keeping of bees within the city limits. All these ordinances have been held unconstitutional on appeal to the courts. Beekeepers should bear in mind, however, that there is ample authority of law to compel them to remove the bees when they become troublesome. Beekeepers living in towns should use great care to place their hives where the bees are not likely to annoy the public.

Carpet Grass for Florida

Forage crop experts of the Florida University are advising carpet grass for Florida pastures. It is recommended as a perennial that can be easily established on cutover lands and which will thrive when subject to the close grazing and trampling of animals.

It is presumed that the carpet grass referred to is the same as the carpet grass of California (*Lippia repens*), which is a native of Chili. If so, it should be of interest to every Florida beekeeper, because in California it is the source of much surplus honey of good quality. It may result in the improvement of the nectar resources of many Florida localities.

The Honey Producers' League

The American Honey Producers' League is getting results. The beekeepers need an organization of national scope and the League fills the bill. The advertising campaign has helped to stabilize the price of honey when many other lines of business were going to smash. The League has presented the claims of the beekeepers to congress and has assisted many beekeepers to maintain their legal rights. The organization is worthy of support and should be worth many times its cost within a short time. We would like to see provision made for individual life membership in addition to the present membership by organizations and believe that by this means much additional revenue can be secured. The League has been feeling its way and we feel that much progress has been made considering the difficulties to be met. The new organization is over the hill; let everybody boost. Let's go.

Happy New Year

With this issue the American Bee Journal begins its 62nd volume. We

feel that never in its history was the outlook for beekeeping as promising as now. The increasing population and better advertising tends to increase the demand for honey faster than production increases. Better methods of manipulation and better pasture are increasing the average returns per colony for many of our readers. Beekeepers have suffered less in the readjustment following the boom than have most other agricultural lines.

All things considered we feel that, in spite of present hard times, the outlook for honey production is bright and those who stick to the middle of the road and drive right ahead will continue to make money from the bees.

A trade journal can only prosper when its readers are prosperous, and we are anxious to do everything possible to assist our readers in increasing the returns from their bees. We value the many kind letters which have come to us and in turn wish to express our gratitude for the loyal support of our thousands of subscribers all over the world. We extend to one and all our best wishes for a happy and prosperous new year.

Keep Your Customers Supplied

We repeat ourselves to urge that the beekeeper who has already sold his own crop, supply his trade with honey from elsewhere, so that his market may be supplied continuously, and the customer be not tempted to change to some other sweet through inability to get honey readily.

A single beekeeper may think that an additional sale of a ton or two amounts to little. But suppose that there are fifty beekeepers in every state who could use an additional ton of honey in the home market. The total would mean two cars to a state, and many cars for the whole country.

Reports coming in would indicate that the above is no exaggeration of the possibilities. Now that our demand is above normal, and the advertising of the American Honey Producers' League is showing results, let us not deliberately hold open the gate for other sweets by lack of supply of the best of them all.

Better Cases for 60-Pound Cans

So many cases of loss of honey through poor containers have been reported of late, that there is a movement on foot to require a heavier case, with a wood division board, where two 60-pound cans are shipped in one box. Although the beekeeper may save a little on the first cost of the case, the use of insufficient protection results in losses in transit and increased freight rates which more than offset the small saving in first cost.

If the railroads require a heavier case before honey is accepted for shipment it will compel some careless beekeepers to use better methods of packing their product, who would never do so of their own accord.

Bees at the Iowa College of Agriculture

An Account of the Men and Work Under Way at an Institution Where Beekeeping is Recognized as an Important Industry.

A college of agriculture is likely to reflect the agricultural activities of the State in which it is located. Where you find a strong faculty representing a particular department, you are quite sure to find that industry thriving within the adjacent region.

The men composing the staff of such an institution are the best that can be obtained for the money available, and often they remain at a personal sacrifice because of their interest in the work. Each has a specialty which he is bending every energy to promote.

Beekeeping has lagged behind other farm activities in receiving attention on the part of our colleges, but of late it is coming to be recognized. While beekeeping has been taught in an occasional series of lectures in one college or another for nearly half a century, it is only within the very recent past that any institution has provided a full staff to cover every phase of the work, including teaching, investigation and extension.

Several colleges are now giving serious attention to the advancement of honey production with from one to five men engaged in this specialty. Because Iowa is one of the leaders, we have chosen to present here some glimpses of the activities carried on by that institution. With a staff of five men, they still find it difficult to meet all the demands, and we feel that this is the best answer to those college officials who so often assure the beekeepers that there is no demand for beekeeping instruction. That the



Corner of the Iowa College apiary partly packed for winter.

work should grow so fast that the necessary force must be increased from one man to five in only six years indicates that beekeeping is receiving real service from the institution.

Some History

The work in beekeeping at the Iowa State College dates back to 1872. At this time lectures in beekeeping were given by Mrs. Ellen S. Tupper, and the bees kept on the farm were used for instructional purposes. There is no record of how long this work continued and it is considered interesting as a matter of history only.

The first serious work in beekeeping at the college was in the nature of investigation work, which was headed by C. E. Bartholomew, with

lectures given to college classes, about 1914. Previous to 1916 the inspection work was conducted by Frank C. Pellett, working independently of the college. The work was reorganized at the suggestion of Mr. Pellett, and in 1916 Mr. Millen came to the college as State Inspector, with teaching and extension duties. The



Prof. F. B. Paddock, State Apiarist of Iowa.



One class in beekeeping at the Iowa College of Agriculture.

law which made this change possible has been considered by many as an ideal disease-control law. Succeeding Mr. Bartholomew as investigator, Mr. Atkins had charge of investigation work for a short period of time. This work was then taken up by Wallace Park in 1918, and is being continued by him. Mr. Millen was

succeeded in 1919 by F. B. Paddock, as State Apiarist, in charge of teaching and extension work. Since that time there has been a very close correlation between these lines of endeavor and the investigation work.

At the present time the beekeeping work is housed in one-half of the ground floor of the Science building. These quarters have just recently been provided and two years ago were considered ample for the needs of the work for some time to come. However, the growth has been so rapid that these quarters are already outgrown and larger quarters are being sought. There are now two men devoting full time to instruction—F. B. Paddock and John G. Jessup. Courses are offered in non-collegiate as well as in collegiate work and in the graduate school. The total number of students, at the present time, is sixty-five, of which three are in the



John G. Jessup, Instructor in Beekeeping at Iowa State College.

graduate school majoring in beekeeping, two for Master's Degree and one for Doctor's Degree.

The courses in non-collegiate work cover a period of two and one-half years. The first students to complete this course will be sent from the college in March, 1922. The photo shows the advanced class. The fact that only one-half time of one teacher was required, two years ago, shows the rapid growth of the instructional work.

In the collegiate work there are now being offered six courses and it is expected that they will be so arranged in the very near future that persons desiring can complete a special four-year course in beekeeping.

An annual beekeepers' short course is held each year by the department for the beekeepers of the State. This short course is of four days duration and the speakers are prominent bee-



Wallace Park, in charge of Research in Beekeeping.

keepers of the State and men prominent in beekeeping from other States. There is now being offered during the winter a special twelve-weeks' course for beekeepers, poultrymen and horticulturists. In taking this course it is possible to get major work in beekeeping and minor work in both of the other lines.

Research

The research work now requires extra time during the summer. This past year R. L. Parker assisted Wal-



Newman I. Lyle, Assistant Professor of Extension in Beekeeping.

lace Park in this work. The major problem is hive economy. In addition to this, data is now being collected on the correlation of nectar secretion, honey flow and climatic conditions. Some results have been obtained on the value of package bees versus over-wintered bees, and at the present time considerable attention is being given to cellar and outdoor wintering.

Extension and Disease Control

The extension work has developed rapidly and now requires the full time of N. I. Lyle, with additional help during the summer season. Work was conducted during the past year in 31 counties and, in many of these, demonstration apiaries were operated. The value of this work is very evident, when the figures are presented, that the demonstration apiaries showed an increased yield of from \$3



R. L. Parker, Assistant in Investigation.

to \$16 per colony over the colonies operated in the same yard by the owner who was using the old methods of beekeeping. As his results were about the average obtained by the ordinary beekeeper of the State, and as the State has probably 130,000 colonies under like conditions, it is fair to assume that the methods there demonstrated would mean an increase of \$520,000 to Iowa in honey alone.

The State apiarist work, that of disease control, is correlated very closely with extension work, as eradication methods are defined by the law as being fundamentally educational. Wherever possible, a county campaign for eradication of disease has been conducted, and in one instance over a period of three years. In this case very satisfactory results were obtained. The special requests for inspection work are answered wherever possible and this is requiring more time each year.

DIRECT MARKETING OF HONEY

By George W. York

What I mean by "direct marketing" is from producer to consumer, without the aid of a retailer or other dealer. In recent years some of the larger producers of honey have adopted the plan of selling their crops of honey direct to the consumers, through advertising in farm and other publications.

This plan, no doubt, is all right, provided the producers charge a retail price, but many are quoting wholesale prices for small quantities, as small as 2 1/2 or 5 pounds. This, of course, cuts out the retail grocer, who often is called upon to buy the producer's honey. But if the producer sells to consumers at the same price that he expects the dealer to pay him for his honey, just at that point the trouble begins.

I do not claim to be a prophet nor the son of one, but I hear of plans of some dealers that, if carried out, surely will put a big kink in commercial honey production in the United States.

I know of one city where there was recently imported about 100 tons of honey from Central America, and this honey was on a par with California sage honey. This is only a beginning. Dealers are going to handle honey on which they can make a profit. If they cannot buy from commercial honey producers at a price whereby they can make any profit they will use imported honey upon which they can realize even more than a fair profit.

Now, I believe that most dealers would very much prefer to handle only native honey—that which is produced in our own country. But if the large honey producers expect them (the dealers) to pay the same price at which they (the producers) are selling direct to consumers, they (the dealers) will simply "pass up" the producers, and import honey that they can handle at a profit.

I myself have paid certain producers as much per pound for a ton or more of honey, at their local railroad station, as the same producers offered to sell it in 5 and 10-pound pails, to some of my customers. Of course, any one who knows anything about business knows that such methods are very unbusinesslike, to say the very least.

I don't know whether the bee papers can do anything to help straighten out this matter, but I predict that if dealers are not treated fairly, by honey producers, some of these days a very large amount of honey will be imported into this country that can be sold at such a low price as to make commercial beekeeping in the United States entirely worthless as a business.

If ever there was need of a strong co-operative organization among beekeepers for the purpose of marketing large crops of honey, that time is right now. Already there are producers that have offered their 1921 crop of white extracted honey at \$5 for a 60-pound can direct to consumers. There is absolutely no good excuse for giving honey away. It is a very valuable food product, and should be sold at a fair price. At the present cost of production, no living beekeeper can afford to produce and sell the best grade of extracted honey as low as 8 cents per pound. If he does he is losing money, but may not know it if he keeps no cost accounts.

Here is a good field for the American Honey Producers' League. I trust to have the privilege of reading some discussions on the phase of marketing honey that I have mentioned.

Washington.

MARKETING SITUATION

By Majors Nordan

One of the greatest problems before the honey producer at present is finding a market for his honey, a market that will pay a profitable price. The increased production of extracted honey, together with the thousands of gallons imported annually, has caused a glutted market, and it is up to the beekeepers of our country to build up an increased consumption of honey in order to dispose of their crop. It is unjust for this foreign honey to be dumped upon our markets at a low price, but we will have to face the situation until it is remedied by a tariff or some other means. The one and only way of facing it is to increase the consumption by educating the public.

The people in general know less about honey and its production (especially by modern methods) than most any other product of its age. People are scarce who know that the different kinds of flowers produce different colors and flavors of honey. Most every one has a different answer as to what is extracted honey and how it is produced. I am speaking of the population of cities and especially the ones not in the immediate vicinity of an apiary. This is the territory we need to reach, as it consumes very little honey. The population of a timbered district where only small quantities of dark honey are produced will not buy the clover and other light honeys very readily. They claim it is a manufactured article and contains glucose or other adulterants. I sold some white clover extracted honey in a mining district near by this year and most everyone, after seeing and tasting of it agreed that it was good, but did not believe it to be pure honey. I was afterwards told of one of them saying "That man can't fool me; I have seen honey all my life." They are really ignorant; how could they be otherwise? We, as beekeepers, will have to place this knowledge before all classes.

One of the best places to do this is through the daily newspapers, farm journals and monthly magazines. Most any of the daily papers will be glad to print short instructive notes about honey and its production. As closely allied as farming and beekeeping are, you rarely see anything concerning honey or bees in the leading farm journals. How can we expect the public to know of our product and con-

sume quantities of it? We have been too careless along this line.

Another opportunity of educating our nearby customers, which a great many of us are neglecting, is the field day at the apiary. At least once a year we should have a field day. It need not be an expensive affair, but may be in the form of a basket picnic. We should spend the day handling, showing and telling people of honey and bees. Show them every step, from a sheet of foundation to the finished section. Extract some honey before them, explaining the economy of it over comb honey, thereby showing how it may be sold cheaper; as some people claim extracted honey sells too cheaply to be pure. This day should be a profitable one also, as large quantities of honey should be sold and many regular customers made.

The last, but not least, means of stimulating honey sales, which I will mention, is fair exhibits. Not enough beekeepers contribute to these displays, for the simple reason the prizes offered are not sufficient to pay expenses. Money spent in this way may well be charged to advertising, and will bring returns equal to most any other form. One great drawback is that some fairs will not permit sales by exhibitors, but they cannot keep you from securing a mail order list, by giving out circulars containing price list and taking names. Besides this gives a means of educating many people along your line, thereby making consumers for you or someone else.

If all beekeepers would get down to real business our sales would be greater. We produce an appetizing article, but quality alone will not sell the quantity produced at present. This is a day of advertising and educating. We beekeepers are behind; let's catch up.

Kimberly, Ala.

(Protection is a two-edged sword. Does our correspondent realize that the European beekeeper says of our honey exactly what he says of West India honey: "It is unjust for this foreign honey to be dumped upon our markets," and that we need to export goods, honey and other things ourselves?—Editor)

WHY EXTRACTED HONEY SHOULD BE HEATED

Dear Editor:

In your answer to a New York subscriber, on page 498, you refer to one of the packing rules of the Texas Honey Producers' Association wherein it is required that members heat and strain their extracted honey before packing. This requirement is not for the purpose of preventing granulation. To heat our Texas honey to 120 degrees will not prevent it from granulating. It may have a tendency to retard this action, but that is not the object of our having all honey heated.

Honey that has been recently extracted has some little foreign matter in suspension. Pollen grains, minute particles of wax, air bubbles and dust

particles may be in the honey. Long settling or bulk storage in tanks will often be needed to thoroughly clarify honey. If the honey is of heavy body even the settling tank will not cleanse it, and straining is a slow process and of little avail.

We have the honey heated to 120 degrees F. The foreign matter, if any rises to the top and can be skimmed off. While hot the honey is more fluid and can be more quickly strained, and through a finer mesh. Honey thus handled will be brighter and have a better sparkling appearance than unheated honey.

Overheating honey will, as you suggest, destroy its bouquet by driving off its delicate essential oils. Heating, as we require, to not over 120 degrees, will improve rather than diminish its flavor and aroma. It will also certainly tend to clarify it and improve its appearance.

E. G. LeStourgeon.

KNOW YOUR MARKET

By H. B. Parks

In this day much is made of the psychology of selling. In fact, so much attention has been given to it that a race of salesmen has been developed who often make themselves obnoxious, because they depend on hypnotic influence instead of knowledge of their goods. A knowledge of the locality, origin and racial home of the buyer are points rarely considered, but are of great importance to the salesman.

This is especially true of the honey dealer. A person's idea of what honey should be is usually governed by the kind of honey he ate in youth. Because of the popular superstition about adulterated honey, if the honey offered, no matter how good, is not the same as the honey of youthful days, it is at once pronounced adulterated, or artificial, and condemned. Large honey dealers have long ago found that certain sections of the United States demand certain classes of honey and, if a shipment is misplaced, it is immediately returned marked, "Adulterated, unfit for human food."

The most casual study will show it is useless to ship light honey to a section where the country honey is dark, and vice versa. It is likewise hard to sell extracted honey in a locality where comb honey is the local product. Thus a knowledge of the kind of honey produced in the various sections of the United States is of great value to the salesman.

Only recently a prominent chemist, in an article on oleomargarine in a popular magazine, stated that, "Only in the United States and the countries of North Europe is butter the common spread for bread; elsewhere it is oil or, in favorable localities, honey." The salesman soon finds that in towns where the population has a high per cent of people from southeastern Europe, Asia Minor, and some Asiatic countries, honey sells very freely. These people have brought the custom of honey eating with them. Thus again a knowledge of the honey-

producing areas of the world is important where one is hunting new trade territory.

The custom of honey-eating, in some races, is best told in the words of A. Talowitz, of the "Jewish Daily Forward," in speaking of the large amounts of honey purchased by the Jews of the United States, he says:

"Nothing can ever successfully take the place of honey. Only nature herself could produce a food that is at once so delicious, so pure, so nourishing, so healthful. Every housewife can make meals and luncheons more delightful by using honey in the preparation of foods, and by serving it on the table."

Permit me to remind you that from time immemorial honey has been a household article among the Jews of the world. The Mosaic dietary law distinctly prescribes that on every Jewish holiday honey must be eaten. Jewish children eat it with bread and biscuits. In the pantry of every Jewish home will be found a jar of honey. Whenever and wherever guests assemble, a dish of honey is served. The expression "sweet as honey" is first found in the Old Testament. In 10,000 synagogues, throughout the length and breadth of this land, thrice daily, the Jews offer up a prayer for the restoration of Israel in the ancient Home—"the land of Flowing Milk and Honey!"

"In Exodus we read the following: 'And the house of Israel called the name thereof Manna; and it was like coreander seed, white; and the taste of it was like wafers made with honey.'"

"Elsewhere in Exodus we also read: 'I am come down to deliver them out of the land of the Egyptians and to bring them out of that land unto a good land and a large, unto a land flowing with milk and honey.'"

"In Ezekiel we read: 'I am the Lord your God; in that day I lifted up my hand under them to bring them forth out of the land of Egypt into a land that I had sought out for them, flowing with milk and honey, which is the beauty of all lands.'"

"And in Canticles we find the following: 'How fair is my love, how much better than wine, and the smell of thine ointments than all manner of spices. Thy lips, oh, my bride, drop honey—honey and milk are under thy tongue; and the smell of thy garments is like the smell of Lebanon.'"

"A famous American writer has recently said: 'One cannot eat honey without stirring odors redolent of Genesis and Exodus. One cannot dip his fingers in a pot of honey and escape the sound of voices from Leviticus and Numbers. The Psalms and Proverbs and the Song of Songs are drenched with its sweetness.'"

"The Jews, that ancient people of the Bible, love honey as no other. The Talmud, that storehouse of Hebrew lore, requires every Jew to eat honey on the Sabbath. Not a Jew festival takes place without honey being partaken of. Not a Jewish home in the wide world where a pot of honey is not always to be found. That which coffee is to the Brazilian and tea to

the Englishman, honey is to the Jew. It is the universal dish. It is the king of foods. It reigns supreme in every Jewish household."

TO POPULARIZE EXTRACTED HONEY

By A. G. Graham

I have an idea that once a person knows extracted honey he will prefer it in this form.

Once, at a family reunion dinner, two youngsters had just reached the honey course, and there being both comb and extracted honey on the table, one was curious to know why the other did not eat the comb honey, saying, you can chew gum and eat honey at the same time. The other youngster replied, seriously, huh; I can chew gum between meals.

While thinking one morning what to order for my breakfast, in a cafe, my attention was attracted by the waiter calling out the orders. The order most often called for was a stack (which, in short, means pancakes). Two deliciously browned pancakes, one upon the other, with a side dish of butter and a pitcher of common corn syrup. This was the most popular short order lunch served by that cafe.

The thought occurred to me that right here would be a good place to popularize extracted honey.

Indeed, I believe that if this cafe had been supplied with extracted honey the customers would have shown a preference for it.

Traveling men want a rarity in the way of eats, and will try most anything once.

If the extracted honey producer could buy a small pitcher for honey, properly designed, say 4x4x2 inches, and made to resemble a honey comb with bees on it, together with the words "Pure Honey," and supply the cafes with honey, I believe that an improved demand could be created.

Arkansas.

BUILDING A HOME MARKET

By L. H. Cobb.

People would eat more honey if the grocers would supply it in small lots, but so the price of the jar would not make the honey cost several times its real value. If beekeepers want to build up their home market through the grocery trade they will have to take this into consideration, and it will pay them. I am sure that there are few grocers in small towns but would be glad to handle the honey that is produced in the locality, so far as they could sell it, if this honey was put up so they would not have to sell it from large containers in small lots. This is not a pleasant job—worse than measuring out molasses, and grocers will not be enthusiastic so long as they are furnished honey in bulk. Neither will the consumers become enthusiastic so long as they pay 15 cents for 6 ounces of honey when it sells for 15 or 20 cents per pound in 60-pound cans direct to the consumer. The parcel post has been used by the large

western beekeepers to meet this demand for honey in reasonable packages at reasonable prices.

The quart fruit jar will save the consumer any expense for container and enable the beekeeper to get a better price for his honey than if he sold in bulk and yet give the grocer a fair profit and put the honey into his hand in such shape that he can sell it with the minimum trouble. Few grocers would hesitate to push honey if it were offered to them in this way. A display in the window would create a market quickly. I know this because I know a grocer who tried it, and with the best of success. He was surprised at the number of people who wanted honey.

Last year a good many people bought honey in 60-pound cans through the farm bureau of one county. In a small town of that county a man ordered several cans from Colorado and offered to sell it out in small lots at about 10 cents more per pound than it cost those who bought in 60-pound cans. He had his first shipment sold before he got it, and at the same time the Colorado beekeepers were advertising to deliver, postpaid, in 5-pound cans, at the same price he asked. Freights were so slow that some sent for these parcel post lots and received them long before his supply came, yet he promptly sold out another shipment as soon as he found his first was spoken for. A local beekeeper, or farmers who would give attention to bees, could have supplied all this honey, and for each one who bought honey that year, several would buy at the prices prevailing now. Parcel post required extra delay, in container and for postage, that the local man would save. To get people to become honey users we must come to them with packages within their reach and at a right price per pound. They will not invest in large lots, even if much cheaper.

Honey is lower in price this year, as are nearly all products of the country, and I wonder how the parcel post marketers will meet this condition. I have no doubt that they have come to stay, and it is a good thing all around, for they will not interfere with the local market in fruit jars, as the saving in the container and postage gives the local man just the right advantage. He produces smaller amounts and consequently at somewhat higher cost, and the small advance he can make net over the net price the distant producer will receive on his parcel post products will still permit him to keep his bees with profit, even if he must allow the grocer a small percentage for selling.

One thing that the beginners in beekeeping should be warned against is selling their honey at an unreasonably low price. I have seen this done more than once. This is especially true of farm beekeepers who have a few hives that have produced a surplus without any great attention. They count this surplus as so much velvet, and sell for almost nothing, instead of getting the no mal price. The result is that the regular beekeepers

find their customers accuse them of profiteering. It costs money to produce honey, and because some fail to keep an accounting and sell for less than cost, this does not make those who do know what they are doing, profiteers.

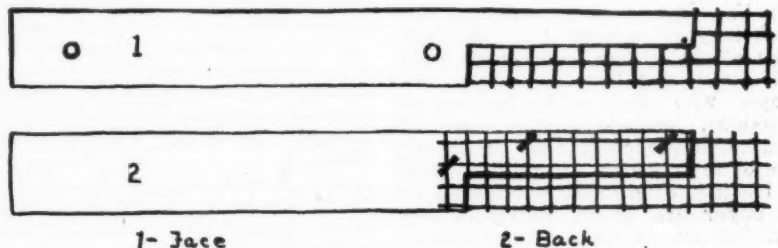
Kansas.

A SAFE ENTRANCE GUARD

The drawing shows an entrance block with coarse screen of three-eighth-inch mesh attached to keep out mice. Mice often enter hives in winter, damage the combs and annoy the bees. The lower drawing shows how the screen is tacked to the wood and the upper shows the guard as it fits against the hive. It is, of course, necessary to use screen with a mesh large enough to permit the bees to pass through readily, while preventing the mice from getting in. These guards are easily made, cost but little and last for many years.

Daniel Danielson.

Colorado.



Entrance guard to keep out mice.

UNEDITED LETTERS OF HUBER

What Happens in a Colony of Which the Queen has Been Removed, and How the Bees Manage to Rear New Ones.

(Continued)

Having had no trouble in the method which I followed, I will need to speak to you a moment, my dear girl, about myself and what I found it necessary to do. Since I wanted to study bees, it was necessary, previously, to study their natural history in the writings of the best nature students, both ancient and modern; then seek a faithful helper who would lend me the aid of his eyes.

After having read a great deal, I gave all my confidence to Mr. Reaumur. My Secretary, Francois Burnens, a young Vaudois husbandman, gave me so many proofs of his faithfulness and zeal that, after having ascertained the quality of his eyesight, I selected him to repeat the observations and delicate experiments that I might wish to make; it was he who constructed my glass hives and suggested to me the shapes and the dispositions which would best fill my plans and render my endeavors more successful and less dangerous.

(I have told in the preface of my book how much I owed to the care of this excellent young man).

He caused me to forget and almost set at naught the obstacles which my

blindness placed in the way of success in these difficult researches.

1. I wanted to know of that queen of whose existence Reaumur had about convinced me; those drones, which according to him were the males of the breed; but especially the workers themselves to which we were indebted for honey and wax.

2. After having made sure, through the eyes of Burnens, I ascertained, as per Reaumur, that there is usually but one queen in a hive, but hundreds of drones and thousands of bees or common workers.

3. It was not difficult to recognize the functions of the three kinds of bees. That of the queen would have deserved for her the most beautiful of all names, that of mother of her people, as the drone is entitled to be called its father. The common workers, in charge of all the cares required for the young and for the construction of the structure, could be entitled to the names of architects or of nurses.

4. My own researches upon the duration of the life of the mothers were ineffectual; it is to the pastor, Mr. De Gelieu, that I am indebted for the knowledge that they live 4 or 5 years.

Mr. Reaumur says that the drones do not live longer than a few weeks; I have ascertained that they may live one or two months and that there are circumstances when their life may be prolonged; that of the workers is never a year.

Colony Activities

To render to the worker bees the entire justice due to them, I must add that, by constant care, they preserve the greatest neatness about them, they make sure that the purity of the breathing air, which is constantly altered by their emanations, is thoroughly brought back instantly to the proper degree of salubrity, they constantly keep at the entrance of their hive a guard entrusted with the important duty of keeping away enemies. The courage with which they repulse their attacks, even at the peril of their lives, and especially their apparent attachment for their queen are laws upon which they are never found to falter. The cares that they give the drones were also noticed by Reaumur; I will perhaps mention it later.

Some people have complained that I did not say a word about all this in my letters on bees to Mr. Bonnet; it was, I believe, because they were addressed to him that I did not think

it necessary to remind him of things which he already knew so well; I made the mistake to overlook the fact that the public might be ignorant of them and uninformed of the acquired knowledge. It is in order that I may not incur a similar complaint that I have consigned you, my dear girl, to the annoyance of reading these details before you hear of their importance.

5. If you are curious to know the duration of the life of the swarm or of the colony, you will need to remember that the life of the queen, according to De Gelieu, is of 4 or 5 years.

Mr. De Reaumur speaks of a colony which, to his knowledge, existed for over 30 years. At Tepic, in Mexico, (1) some are known which have been in existence for a century.

Note: (1) The bee of Mexico to which this refers is not our *Apis mellifica*, but a stingless bee, a *melipone*, probably the domestic *melipone* described in 1859 by Pierre Huber. (Society of Physics and Natural History of Geneva, Vol. VIII, page 1.—Ed.)

In the cases of queens living 4 years, it required but 25 succeeding queens in the same hive to reach this term. Twenty will be sufficient in the other case. The two examples cited prove that it must be thus, with us, as in America, and this would probably be the case if the queen bees were an exception to the common law, if they could not be removed from their people by disease or by some accident and perish before the term which nature grants to them.

This danger, foreseen as are those to which all beings are subject, is avoided in so strange a manner that it appeared incredible to Mr. Bonnet; that which refers to it will be the subject of my next letter.

Loss of Queen

The queen may thus die of violent or accidental death, or through some disease unknown to us, or of old age when the end of her life is reached.

If she dies, leaving in the small or worker cells eggs or larvæ from which worker bees were to hatch, the loss of the queen will soon be remedied, that is what the Pastor Schirach discovered and which Mr. Bonnet could not believe.

As soon as I heard of the natural history of the queen by Blassiere and the assertion of the German pastor, I went to Genthod to talk with Mr. Bonnet about his doubts and about the reasons which he gave for them; I took the liberty of asking my wise friend whether he had renewed the test made by Schirach and which had caused such marvelous consequences. His negative answer emboldened me to propose to make the test which he had been unwilling to attempt. His great kindness showed that my temerity was not displeasing to him and that he would put confidence in the results that I might secure; he did more, he told me what I should do and indicated the caution that I must use in order to deceive neither myself nor others; the sequel proved to me that this excellent man was much

more anxious to secure the truth than to retain his acquired opinions.

In order to verify the assertion of the German pastor, it was necessary to remove the queen of a hive, and see what would happen. Would her people, deprived of their mother, become discouraged? Would they leave their home, their treasures so laboriously gathered, and especially their young which had been so carefully nursed, thus far? That is what one might have thought; could the best naturalists, even Reaumur, imagine that the loss of the queen was not irremediable? Schirach, not having told all the details which led him to this great discovery, I resolved to seek them and for this purpose to open the book of nature.

Experiment

*Burnens selected for this experiment one of my finest colonies in glass hives, the one whose numerous population showed the greatest activity and in which the industry of the workers had maintained the finest order. It was in a fine evening of spring, and when all the fielders had returned home, that he hunted for the queen, and soon found her. He removed her from the comb and did it with such mildness that not a single bee appeared to perceive it; they continued for a half hour all the labors entrusted to them. I perceived then that the humming was becoming stronger every moment. Burnens saw a few bees running about the combs, without stopping over the brood, and passing over one another. The number of running bees increased as well as the hum. A few moments later all was confusion in that hive; the workers left the combs and the brood, ran towards the entrance and rushed out with the greatest haste. We thought at first, having at last noted the disappearance of their mother and her possible loss, they had decided to leave. We saw very soon that such was not the case, that the temporary leaving of the hive was due only to their ardent desire of finding the lost queen, for none of them took flight. It was only to hunt for her that they had gone out of their home to run in every direction, outside of the hive, from which they did not stray far. Their wanderings lasted over half an hour; when they re-entered the home, their humming, much less loud than at first, gave me only the impression of their eagerness to return to the brood that we thought they were forsaking. Calm was re-established gradually, and the finest order soon reigned in every part of the hive.

This taught us only that the bees ascertained the loss of their queen, but did not enlighten us on how they had learned it. Was it really to make up for this loss that they were returning home; was it not rather because night was approaching? The sequel was to give us the answer.

First Observation

If my supposition was correct, if the swarm deprived of its queen had no hopes of finding her or means of replacing her, I should expect to see them desert the following day. We resigned ourselves to the task of

keeping in sight of them. We saw, at the dawn of the following day that order reigned in the hive, that the bees covered the combs of brood, or rather that they were actually settling upon the young, lodged in their cells, as was unquestionably indicated by a higher temperature in that part of the hive. In that part of the comb, the greater number of the cells were about to be closed or were already sealed; the little larvæ in other cells were very close to the change into nymphs, a dozen cells at most were still open; when the nurses would move away for a little while we could see the young larvæ in the bottom of the cells which served as their cradles. At noon of the same day, three of the open cells showed a remarkable peculiarity. Their larvæ, apparently of the same age, were no longer coiled at the bottom of the cells; they had reached the center of the tube; we did not then understand how they had been brought there; since they were apod (without feet) it seemed very singular. By throwing a better light into the comb we saw that the rear part of the cell was filled with a semi-transparent substance resembling the jelly which is used to feed their young. Was this jelly the result of digestion in these same larvæ? Or, was the pap which is fed to them packed behind them by their nurses, as one places a cushion behind the loins of a sick person, or of a child, so that it may better sit up in bed? However minute in appearance this question be, I must not omit any new feature that may be useful in the bee industry (it will be better established later).

As the extreme softness of the young larvæ, and especially of those which are now in question, does not allow the nurses to draw them forcibly to the front of the cell, they can bring them forward with the help of this so-called cushion which they spread behind them.

Second Observation

The three cells observed were not in close proximity to each other; those which surrounded them were closed and contained either nymphs or larvæ ready to become nymphs.

As early as the previous evening, we had seen those cells covered with bees, doubtless actively occupied with some important work, but of which we could not discern the purpose; a few hours later this purpose became manifest. These bees appeared to be bent upon destroying the cells upon which they were working, together with the larvæ or the nymphs which inhabited them, thus enlarging the three cells in their diameter, taking away, for that purpose, the cell walls of the hexagonal cells and changing them to a cylindrical form.

It appeared to us that the bees were opening, almost at right angles, another cell on the horizontal tube.

At this stage of their work one could hardly see the larvæ any longer, but they were so near the opening of the old tube and its right angle junction with the new, that we hardly doubted but that they had been brought or pushed that far to lower

them into the part which had been added to the horizontal tube. The new cell, prolonged downwards and almost vertically, took the shape of an inverted pyramid, the open summit still permitted a worker to enter into the pyramid to care for the young larva; whenever she emerged she was at once replaced by another, and this lasted until the cell, closed in a point, became a real pyramid, in every particular similar to the royal cells so well described by Reaumur. Thus the discovery of Schirach was apparently almost demonstrated.

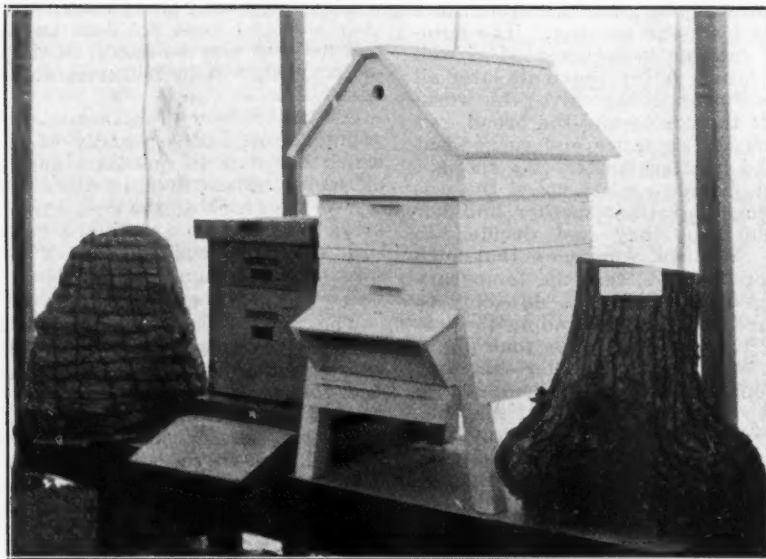
Third and Last Observation

It was entirely convincing to us, when we saw, emerging from these three cells, real queens, similar in every respect to the one which we had removed two weeks previously. Schirach has therefore said truly that bees can repair the loss of their queen.

(To be Continued).

FROM ADAM TO DIAMOND MATCH

Mrs. Dora Stuart sends the picture of the bee gum, straw skep and American and English hives. These were part of the exhibit of the apiary department at the Glenn County California fair. Because the exhibit represents the extremes from the earliest home of the honeybees to the latest Diamond Match product, she labels it "From Adam to Diamond Match."



From Adam to Diamond Match.

LATE INTRODUCTION OF QUEENS

By W. H. Lewis

Having read your answer to "Tennessee" about how late can queens be introduced, page 456, November American Bee Journal, perhaps my own experience this season may be of interest to you and other beekeepers. Late introduction is not advisable, is disagreeable, but sometimes unavoidable.

Among the queens I bought in August one did not lay, wasn't built that way. After trying to coax her to

start by feeding, I wrote the breeder, who sent in another, but unfortunately she arrived dead; cage was returned and another was sent, which arrived in good condition on the 24th of October, a cold, wet, windy day; thermometer 40 degrees, with no show of immediate change.

I got a smoker, and wife as helper, and half a dozen grain sacks; colony was in two stories in winter case; lifted off cover, put it on the ground top down, put down two sacks on it, pried off top story and put it on the sacks, with an inch strip under one end to avoid killing bees. I covered the other brood chamber with two sacks, my wife raising the sacks on one side of the hive on the ground; a small puff of smoke and I pulled out the topside frame, brushed off a few bees into the hive and set it to one side, took the next frame, looked it over, replaced it in the hive, and so on to the last, the hive being quickly covered after each frame was removed. Then I started on the bottom brood chamber, the same way, covering as quickly as possible after each frame was removed. About the middle I found the queen, disposed of her, replaced the hives as quickly as possible, took the caged queen from my pocket, ripped off the wire screen, poured some honey over bees and queen, turned them into the hive between the frames, poured the balance on top and covered up. The whole

These bees were warmly packed and it is doubtful if there would have been any brood if they had been in a single-wall hive at this time of the year.

Bees were scattered over every frame in both instances, with no signs of clustering, showing that they were comfortably warm, with the advantages of good winter protection.

British Columbia.

(This was a fortunate case. Failure often results with this method of introduction when there is no honey-flow on.—F. C. P.)

USING CENSUS FIGURES

The statistics offered in the September American Bee Journal on the honey-bee census suggested to Mr. C. Reynders, of Pennsylvania, the compiling of the accompanying table. We believe it will interest our readers.

Figures in parenthesis show ranking of States in area in square miles.

The figures at the right are numerals followed by fractions.

It is noticeable that five southwestern States lead in number of colonies per square mile, with Illinois and Pennsylvania next.

The ranking of different States when different angles are considered, is much changed and shows to what length the census can be used as a bureau of information.

Deductions on Honey Production, From 1920 Census

Colonies of Bees, 1920, Per Sq. Mile

1 Tennessee (34)	4.569
2 Kentucky (36)	3.922
3 North Carolina (28)	3.153
4 West Virginia (40)	3.099
5 Alabama (27)	2.957
6 Illinois (23)	2.922
7 Pennsylvania (32)	2.720
8 Ohio (35)	2.577
9 New York (29)	2.507
10 Virginia (33)	2.482
11 Iowa (25)	2.470
12 Indiana (37)	2.418
13 Georgia (20)	2.316
14 Missouri (18)	2.285
15 Arkansas (26)	2.122
16 Wisconsin (24)	1.940
17 South Carolina (39)	1.934
18 Mississippi (31)	1.800
19 Michigan (21)	1.609
20 New Jersey (45)	1.556
21 Delaware (47)	1.488
22 Connecticut (46)	1.392
23 Maryland (41)	1.343
24 California (2)	1.144
25 Vermont (42)	1.055
26 Kansas (13)	1.000
27 Texas (1)	.887
28 Washington (19)	.823
29 Massachusetts (44)	.821
30 Minnesota (12)	.811
31 Florida (22)	.711
32 Oklahoma (17)	.668
33 Louisiana (30)	.647
34 Colorado (7)	.614
35 Rhode Island (48)	.574
36 Nebraska (15)	.533
37 Oregon (9)	.471
38 New Hampshire (43)	.465
39 Idaho (10)	.422
40 Maine (38)	.380
41 Utah (11)	.300
42 Arizona (5)	.249

operation was over in a few minutes, and this is as sure a way to introduce a queen as I know of; only don't do it until evening in warm weather, or else there will be robbing started. I have often pulled queens out and introduced at once, and never had a miss.

Today (Nov. 9) (thermometer 40 degrees, very few bees flying; opened the hive, lifted a frame from middle, which had about 3 square inches of brood. There may have been brood in other frames on each side; did not look.

43 South Dakota (14) -----	.221
44 Wyoming (8) -----	.144
45 New Mexico (4) -----	.130
46 Nevada (6) -----	.109
47 Montana (3) -----	.008
48 North Dakota (16) -----	.001

Honey Production, 1919, in Pounds,
Per Sq. Mile.

1 New York (29) -----	65.782
2 Iowa (25) -----	50.715
3 Wisconsin (24) -----	47.800
4 Tennessee (34) -----	46.900
5 Kentucky (38) -----	40.114
6 California (2) -----	34.821
7 Pennsylvania (32) -----	34.796
8 Illinois (23) -----	33.875
9 West Virginia (40) -----	31.713
10 Virginia (33) -----	30.174
11 Alabama 27 -----	25.916
12 North Carolina (28) -----	25.738
13 Vermont (42) -----	24.666
14 Colorado (7) -----	24.213
15 Georgia (20) -----	23.794
16 Washington (19) -----	23.133
17 Michigan (21) -----	22.800
18 Ohio (35) -----	20.590
19 Texas (1) -----	19.000
20 Maryland (41) -----	18.000
21 Missouri (18) -----	17.545
22 Connecticut (42) -----	16.618
23 Florida (22) -----	16.600
24 Indiana (24) -----	16.177
25 Mississippi (25) -----	16.000
26 Minnesota (12) -----	15.073
27 Arkansas (26) -----	15.000
28 South Carolina (39) -----	14.723
29 Utah (11) -----	14.670
30 Idaho (10) -----	14.215
31 Delaware (47) -----	13.851
32 Wyoming (8) -----	11.178
33 Oregon (9) -----	9.688
34 Massachusetts (44) -----	8.846
35 Arizona (5) -----	8.200
36 Nebraska (15) -----	8.094
37 Kansas (13) -----	7.291
38 Maine (38) -----	6.336
39 New Hampshire (43) -----	5.500
40 Rhode Island (48) -----	5.407
41 Nevada (6) -----	5.250
42 Louisiana (30) -----	5.156
43 Oklahoma (17) -----	5.109
44 New Mexico (4) -----	4.863
45 South Dakota (14) -----	4.832
46 Montana (3) -----	4.319
47 New Jersey (45) -----	2.022
48 North Dakota (16) -----	.181

Honey, 1919 per Colony, 1920.

1 Wyoming (8) -----	77.50
2 Montana (3) -----	53.00
3 Utah (11) -----	49.30
4 Nevada (6) -----	48.00
5 Colorado (7) -----	39.50
6 New Mexico (4) -----	37.50
7 Idaho (10) -----	33.50
8 Arizona (5) -----	33.00
9 California (2) -----	30.50
10 Washington (19) -----	28.00
11 New York (29) -----	25.25
12 Wisconsin (24) -----	25.00
13 Florida (22) -----	23.50
14 Vermont (42) -----	23.40
15 Texas (1) -----	21.50
16 South Dakota (14) -----	22.00
17 Oregon (9) -----	21.00
18 Iowa (25) -----	20.50
19 Minnesota (12) -----	18.50
20 North Dakota (16) -----	18.00
21 Maine (38) -----	17.40
22 Nebraska (15) -----	15.00
23 Michigan (21) -----	14.00
24 Maryland (41) -----	13.50

25 New Jersey (45) -----	13.00
26 Pennsylvania (32) -----	12.80
27 Connecticut (46) -----	12.00
28 Virginia (33) -----	12.00
29 New Hampshire (43) -----	11.75
30 Illinois (23) -----	11.75
31 Massachusetts (44) -----	11.00
32 West Virginia (40) -----	10.25
33 Georgia (20) -----	10.25
34 Kentucky (36) -----	10.25
35 Tennessee (34) -----	10.25
36 Rhode Island (48) -----	9.50
37 Delaware (47) -----	9.00
38 Alabama (27) -----	8.75
39 Mississippi (31) -----	8.75
40 North Carolina (28) -----	8.00
41 Ohio (35) -----	8.00
42 Louisiana (30) -----	8.00
43 Missouri (18) -----	7.80
44 Oklahoma (17) -----	7.50
45 Kansas (13) -----	7.50
46 South Carolina (39) -----	7.50
47 Arkansas (26) -----	7.00
48 Indiana (37) -----	6.75

Areas of States in 1000's of square
Miles.

1 Texas -----	265
2 California -----	158
3 Montana -----	146
4 New Mexico -----	122
5 Arizona -----	113
6 Nevada -----	110
7 Colorado -----	103
8 Wyoming -----	97
9 Oregon -----	96
10 Idaho -----	85
11 Utah -----	84
12 Minnesota -----	83
13 Kansas -----	82
14 S. Dakota -----	77
15 Nebraska -----	77
16 N. Dakota -----	70
17 Oklahoma -----	70
18 Missouri -----	69
19 Washington -----	69
20 Georgia -----	59
21 Michigan -----	58
22 Florida -----	58
23 Illinois -----	56
24 Wisconsin -----	56
25 Iowa -----	56
26 Arkansas -----	53
27 Alabama -----	52
28 North Carolina -----	52
29 New York -----	49
30 Louisiana -----	48
31 Mississippi -----	46
32 Pennsylvania -----	45
33 Virginia -----	42
34 Tennessee -----	42
35 Ohio -----	41
36 Kentucky -----	40
37 Indiana -----	36
38 Maine -----	33
39 S. Carolina -----	30
40 W. Virginia -----	29
41 Maryland -----	12
42 Vermont -----	9.5
43 New Hampshire -----	9
44 Massachusetts -----	8
45 N. Jersey -----	7.8
46 Connecticut -----	5
47 Delaware -----	2
48 Rhode Island -----	1.01

ties have to be grown in an orchard to act as pollinizers, and the question of obtaining the greatest cross pollination is the factor governing the resultant crop.

From observations covering several years I have found that the honeybees cannot be depended upon as pollinizers. They will work the earlier cherry blooms, but just as soon as the dandelions come into bloom, which is usually within three days of the first cherries, they will forsake the cherry for the more productive dandelion.

The overwintering queen bumblebee, on the contrary, seems to prefer the cherry blossoms, and from its habit of rushing around from tree to tree is the most important factor in cross pollination.

The trouble is that so few bumblebees survive the winter; a wet open winter is more fatal than a dry, cold one, hence there is often a great scarcity of them when they would be most useful.

Thus we arrive at the question of how a goodly number of them can be kept in captivity during the winter ready to release at the opportune time.

Can any of the many readers of your valued journal suggest any means of overwintering bumblebees, and by so doing help me to solve my dilemma?

J. Wm. Cockle,
Kaslo, British Columbia.

PACKAGE STANDARDIZATION

There is now before the House of Representatives at Washington, a bill for standardization of hampers, stave baskets and splint baskets for fruit and vegetables. This seems likely of passage.

The standardization committee of the Honey Producers' League desires to make an effort in the same direction in the matter of honey packages. To the casual observer, it would appear that there is a fairly uniform standardization in extracted honey packages in the 5-gallon, 10-lb., 5-lb. and 2½-lb. cans, but even in these each manufacturer of cans has a special size, so that the lid of one manufacturer will not fit the lid of another. The friction top cans are far from uniform in size; some are taller than others, some have to be filled full to get the required weight, others leave some margin.

In glass packages there is no standard. Nearly every size glass, from a 3-ounce to a 3-pound is offered.

It is to be hoped that the beekeepers themselves will show to the committee sufficient interest so that opinion may be crystallized and recommendations be made which will hasten standardization of comb and extracted honey packages.

GERMAN BEEKEEPING ORGANIZATIONS

The "Neues Schlesiendes Imkerblatt," in its issue of October, gives a report of the meeting of the Association of German Beekeepers' Societies held in Schwerin in July.

The interesting feature to the American reader is the enormous

BUMBLEBEES AS POLLINIZERS

I am a cherry grower. The three leading varieties of cherries that are grown here are Royal Ann, Bing and Lambert; all of these are both self sterile and intersterile. Other varie-

membership of this organization, which is made up of some thirty-six beekeepers' associations throughout the country. The total membership is 238,466, reporting a total of colonies owned by members of 2,217,236, or a little less than ten colonies per individual, average. Many societies have their own experimental stations, beekeeping courses, libraries, etc.

The largest membership comes from the Bavarian association, with 52,380 members. The next largest, Wurttemberg, with 20,398 members. Nearly every association has its own official organ.

One of the subjects considered at their July meeting was the appointing of committees and making of arrangements for shipping of 25,000 colonies of bees to France and 23,000 to Italy under agreements made at the time of the armistice. These colonies are to weigh net from 35 to 37 pounds, the price to be paid the beekeepers to be fixed by agreement between the beekeepers' committee and the Government.

KILLING HORNETS

On page 441 of the American Bee Journal you have an article from India in regard to hornets killing bees and asking how to get rid of them. Here in California we are troubled some with yellow jackets around the hives and honey. The best way I know of to get rid of yellow jackets is to take a piece of meat (we use a rabbit) and poison it with arsenic and hang it up where the yellow jackets will get it.

It will surely make a cleanup of yellow jackets. It might work on the hornets of India.

Geo. W. Moore, Antioch, Calif.

A NOVEL ADVERTISEMENT

The picture shown on this page is of a combination display put on by the Colorado Honey Producers' Association and the Denver Gas and Electric Company. The Electric Company used the bees in the observation hive to suggest the Hoover Sweeper as a labor saver to the housewife. Here is a suggestion which may well

be copied in many other cities. The interests of the beekeeper and the Electric Company may equally well be served by the same window display. An observation hive in a show window always attracts the attention of those passing by and beekeepers can interest men in other lines of business in such a combination display. In a number of cases banks have used similar displays to urge thrift. A mere suggestion is often sufficient to remind the passing crowd that honey would be a welcome change to the daily menu.

SOME REFLECTIONS

By S. J. Harmeling

While I am feeding and preparing my bees for winter quarters many of the experiences of the season come to mind, and it may be of some interest to relate a few of these.

1. We have always thought well of the American Bee Journal, but the past season's issues have been of surpassing interest to me. The scope of it, the living issues treated by masters of the subjects in a masterful way, have enhanced my appreciation manifold.

The articles of Dundas Todd have thrown a new, strong light on how to manage our bees in this West Coast country. We have here practically two seasons, the rainy and the dry. The wet season begins with us about the 10th of October and continues until about June 1. June till October 10 is the usual dry season. How to protect our bees during the rainy season and have them strong by the 1st of May is the problem which Mr. Todd has solved for us. His article on page 454, November, is worth to me more than two prices of the American Bee Journal, for I have been studying on the same lines and have, the past season, begun to introduce the modified Dadant. Back in New Jersey, in the seventies, we had a great time experimenting. I commenced with the Adair frame, tried most of the others of that day and finally settled on the frame simplicity of the Roots and held to it strenuously like a Scott, who hardly gives up or changes front.

Now I am a convert. The principal reason is, easier manipulation. May be I am getting lazy (may be Todd is more or less afflicted that way), but the proper manipulation of a two-story frame hive is some chore, especially with mine, which are Lewis hives. I assembled a lot of them, put in colonies, and now I find that there is a bee space below the frames as well as above. Putting one story on top of another leaves me two bee spaces, or three-fourths inch space between the upper and lower story, and the bees will fill this space with bur combs. It makes a bad mess. Using the excluder, we still have the same trouble.

The remedy, of course, is the buzz saw or the jack plane. Maybe the Jumbo is a good hive, too, but I am impressed with the inch-and-a-half spacing of the frames, and also the size of the super, and especially the division board with the oilcloth edges, though this being of two narrow boards, is of wrong construction. It should be made of one-quarter-inch stuff nailed to a frame of the proper width. A hive without a division board is to me an abomination. The new wire-bound division boards in the Lewis hives warp all out of shape and are a nuisance.

2. If European foulbrood can really be checked or cured by spraying with ordinary "javelle water" (sal soda and chloride of lime) then our faces are turned toward the dawn of brighter days in beekeeping. But I sometimes think that European foulbrood is a "blessing in disguise," for, having spent a week with Professor Slocum, of the Entomological Department of Pullman College, inspecting the bees of Vashon Island, we found that where there were colonies of blacks among the Italians, the blacks were usually dead, or near it, while the Italians were cleaning up. The corollary is, goodbye blacks and box hives and immovable combs in movable-frame hives.

4. Let me add to Burdick's wail on page 451, November: A neighbor bought a wagon, a horse and a cow (the latter from us). He also bought a lot of Yakima alfalfa for feed. The cow is dead, and the horse, too. The veterinary surgeon says arsenate of lead in the hay is the cause, as the post mortem shows.

The poor fellow's hopes are blasted. He had banked on the horse and cow to make a living. Keep cool, Brother Burdick, it will get into the courts, and before the Legislature. Such barbarism will not be permitted long in this glorious altruistic West.

Washington.

CLEANING WET COMBS—INTRODUCING QUEENS

By E. M. Cole

The editor deserves the thanks of back-lot beekeepers for that article on extracted honey. The small producer has been crowded to one side, to some extent, although he probably forms a large majority among beekeepers.

Here are a few things which may help another back-lotter, and he may



A co-operative exhibit at Denver, Colorado.

possibly help me in some of them.

I have quit stacking wet extracting combs outside for the bees to clean up, not because of robbing, but because of the wear and tear on bees while cleaning them up, and the number of bees killed in fighting over them.

I had put a few of them back on the colonies this fall, and on looking at one of them I noticed the honey the bees had cleaned out of the cells had all been re-stored in a couple of old black combs. An examination showed the same to be true of the balance of the supers. I at once put 20 supers of wet combs on the colonies, making sure each had a couple of dark combs in the center.

An examination a few days later showed the combs cleaned and the honey all stored in those dark combs. There was not an exception in the lot, and it is easier to run those two combs through the extractor for a final cleaning than the entire ten.

But I didn't run them through the extractor, I put them on top of some colonies needing more feed, and left them until the honey was carried down.

Those 20 supers of wet combs were given back to the bees in the day time, as also later were the black combs containing honey.

It sometimes saves time to do a thing at your own convenience instead of at the convenience of the bees; so I thought I would try Dr. Miller's newspaper plan. A sheet of paper was put on each colony and the wet combs placed above, and not a case of robbing resulted. I tried this a number of times, later, with a few supers, and fed back a super full of uncapped honey, putting them on in the day time, and not in one instance did it cause any trouble. Some of you please try this.

I think these black combs might help to prevent or delay swarming, as the queen would occupy another brood chamber quicker in order to use these combs, and the bees would begin storing above the brood nest earlier in the harvest, thus relieving the pressure on the brood nest.

I tried a new idea in queen introduction this season, at least new to me, which may have some value for the small beekeeper, and I ask him to help try it out under different conditions of honey flow or dearth, and with laying queens and queens received by mail.

W. Z. Hutchinson says, on queen introduction, in "Advanced Bee Culture": "It is important that the queen be brought before the bees in a natural manner, in such a place and in such a manner as they would expect to find her." And I believe that is the ideal to be sought for in any form of introduction.

When a colony is dequeened they soon show a knowledge of their loss by running around on the alighting board and over the front and sides of the hive. The length of time after dequeening before they show this distress, seems to depend on how much the colony is disturbed at or immediately after dequeening.

Now just at the time the bees are

showing this distress, in what manner or at what place would they expect to find the queen? Why not right on the alighting board? I had this idea in mind a long time without trying it out, but this fall, happening to notice a colony showing these signs of queenlessness, I dropped a laying queen among them on the alighting board, where she received a joyful welcome. I tried it on two more, with the same result.

There was a slight tendency for bees to rob at the time I introduced these queens, but not enough to give the idea a real trial.

Iowa.

SMALL OR LARGE BROOD-CHAMBERS

By John Protheroe

I found Mr. C. E. Fowler's article in the September number of the American Bee Journal of particular interest. I, too, have adopted the shallow extracting frame as my sole equipment. With the intention of concentrating on queen-breeding and with the conviction that multiple brood nests of shallow frames were the best for cell incubation in queen-right colonies, I have attempted to build up an apiary of supers alone. The great advantage of uniform equipment and of absolute interchangeability between all colonies and mating boxes moved me to take this step. Being able to sustain mating boxes all through the season with combs of brood and honey from big colonies is surely a great feature in a queen yard. Such conditions should enable one to do away with the syrup can and the Doolittle feeder except for unusual emergencies. For brood arrangement in incubating colonies the handling of shallow frames is a much easier job than the manipulation of a double brood-nest of Langstroth frames; further, to work up a full, double brood-nest of L. frames sufficiently early in the season "takes a bit of doing." After considering all things, I plumped on a shallow frame equipment. I am therefore most interested to find in Mr. Fowler a beeman who advocates a shallow frame equipment not merely for a queen yard but for honey production.

I have no enlightening information to give beyond that for the present season it has proved most unsatisfactory—but then the present season itself has been most unsatisfactory. In southern Virginia, as in North Carolina, we have had a zero season. I notice some quite respectable figures in the columns of State reports; I think everybody in this neighborhood would fill them in with a row of noughts. We had a semi-tropical March, followed by a freezing April. This wiped out fruit blossom, locust and tulip-poplar to zero and even injured sourwood, which does not bloom till July. After this early summer disaster, a drought set in which is still going strong, the aster plants being as dry and brittle as in December.

Any remarks that I make on the

subject of frame dimensions must be read in the light of the above facts. It would require a couple of normal or extra good seasons to strike the balance that would enable one to generalize. Of one thing I am convinced; with a dribbling honey flow or gradual feeding you cannot escape having patches of brood ringed with honey. The feeling that things are not going over well leads the bees to adopt this annoying procedure. It is surely a great argument in favor of the large frame. Better a big patch in a Modified Dadant frame than a small patch in a shallow frame. I don't believe that manipulation can avoid this nuisance, because it is instinctive preparation for the future. "Solid slabs of brood" are not natural. Who ever saw a wild nest in which the brood was not bordered with honey? Even the tall, thin gum with its unnaturally elongated combs will usually show this feature. All want solid slabs of brood, and we can get them, but, as with the 300-egg hen, we direct and control nature into producing such things, and she is trying to get away from us, back to her own way of doing things.

Is Mr. Fowler's letter the signal for another flare-up of the frame controversy? In beekeeping, as in every live industry, there are points around which controversy rages without ever reaching a definite conclusion. Frame dimensions have been debated furiously for half a century, yet no one would claim that the matter had been settled for good. There are still many disgusted veterans who swear by the Danzenbaker, and the British stick resolutely to their 14-8½ standard, in spite of all that their colonial brethren can do to dissuade them. Two main arguments are produced in its favor. One, that it can be contracted in the fall, as brood decreases, and expanded in the spring, thereby insuring a close and warm cluster in winter and all possible room in summer; secondly, that a single brood chamber of these dimensions is best for the farmer-beekeeper and the average amateur. Such beekeepers do not keep young and highly bred queens; they keep scrub queens of any age and leave them largely to their own devices. This is unfortunately true of all countries, but it is a doubtful step to set a standard by the incompetents of an industry. But British beemen are far from unanimous and many of the best apiarists are adopting 16-10. The French, Germans and Swiss are all coming into the camp of the large-frame advocates.

My experiences with the shallow frame this season have convinced me that there is nothing like the Modified Dadant for increase and honey production. The Langstroth is awkwardly large as sole equipment for a queen breeder, and the Modified Dadant impossibly so. I will therefore persevere on present lines and find encouragement in Mr. Fowler's success with the shallow frame. For building up in a bad season or under

feeding conditions. I give it a bad mark.

Here let me make a digression suggested by these experiences. One says, "It is difficult to get the queen to do this," or, "It is found that the queen will not do that." Now, how far is her ladyship a free agent? Everyone is ready to grant that she reacts to "the spirit of the hive." This subject of the hive may, further, be said to be a reflection of the condition of the hive, and this, again, is the sum or result of the past and present prosperity of the colony and the industry and fertility of the stock. One might put it into a sort of a rigmarole and say the present condition and future prospects of the colony create a pervasive spirit that moves the bees to control the laying of the queen, thereby inducing a colony condition which—

It makes a pretty circle, or, better, spiral movement up or down. The queen's function is automatic; she does what the mass feeling of the hive decides that she should do. Hers not to reason why; hers to lay in the polished cells. The number and position of polished cells are the key to the future of the colony. I do not recollect having read in any textbook a discourse on this subject. "Observations on Polish" should certainly be given a place. A queen never lays in an unprepared cell. All cells in which it is intended that the queen should lay are given a high polish; those in which it is proposed that honey and pollen should be stored remain normally dull. The training of the eye to catch this delicate symptom is one of the most useful accomplishments a beekeeper can have. When looking through hundreds of mating nuclei to see if the virgins are mated, one need only look for polish. It is satisfactory to spot the eggs, but the polish tells all that one needs to know and often precedes the eggs; the bees know that the queen has been safely mated. If, then, we accept this polish theory we have under our eyes a proof of the close limitation of the freedom of the queen. Just so many cells are prepared as the condition of the hive warrants, and no more. To speak of the queen as if she ranged through the hive looking for a batch of empty cells in which to lay is incorrect. The true way of putting it would be to say that she ranged over the combs looking for polished cells. A queen always pops her head into a cell before laying in it. Sometimes she passes on. The well-known picture of the queen surrounded by her retinue is often changed for a glimpse of a hustling, preoccupied queen moving rapidly and unattended over the comb, passing many empty cells on her way. When a queen ascends into an upper story, it is probably because the bees have decided on the move and have prepared no more polished cells below. I suppose one can drive this theory too far, but experience with mating nuclei has led me to place much faith in it. In the case of a newly-introduced queen laying in a

hive where the bees are not her own offspring, the quantity and position of the brood would seem to be matters for which she has no responsibility whatever. So that before condemning a queen for supposed inadequacy one should at least be sure that the bees which have made the unsatisfactory arrangements are her own children.

Virginia.

IS THE BOX-HIVE A MENACE?

By Major Shallard

I do not know that Allen Latham is right on page 321, August, in reference to box-hives, but I would not swear he is wrong. I had no doubt his ideas were wrong until I read his article. A great deal depends upon the administration. We have a law in New South Wales prohibiting the keeping of bees in any hive from which the combs cannot be removed. You see the point. The law does not state any kind of hive, but the combs must be removable. This answers some of the objections of Mr. Allen Latham. The onus of having the combs built straight is thrown upon the apiarist. The law works well here, but there is not much of the policeman about the inspectors. They use a good deal of tact and it greases the wheels.

I think the point Mr. Latham makes, that the box-hive does not spread disease as much as the frame one is true. Our act makes it compulsory to report disease, and among diseases is specified the bee moth. I have always contended that the bee moth is our best friend, as without it we should be killed out with disease. It has been claimed that the moth was introduced to Australia in 1875, with some Italian queens from America, and that they soon reduced the number of black stocks, which were common at that day.

I do not know whether this is correct, but I do know that the earth is waxing old, as the Bible says, and that bees have more and more diseases every year. In the old days all that was necessary was to see that each hive had a queen and plenty of food; but now the bees disappear and leave patches of capped brood and honey and pollen in abundance. In the old days the pursuit was represented by the two p's of pleasure and profit. now it is the two w's—work and worry.

Australia.

(Our correspondent seems to think that foulbrood is greater now than it used to be. But he must remember that, nearly 100 years ago, Dzierzon lost practically all his bees from foulbrood and that Schirach, in 1770, described the method of curing it, by starving the bees, or depriving them of all their honey.—Editor).

GETTING RID OF BOX HIVES

By Wm. Kernan

Pennsylvania is going to try and get rid of the box hive nuisance. I understand a law has been passed to

that effect. In that case a bee inspector would have the right to burn or destroy such colonies.

Now, I am going to suggest something which might be worth several thousand dollars to the State and to other States also. It is a method I thought of about 10 years ago. I tried it on a few colonies infected with European foulbrood, and this summer I had a chance to try it on a few colonies infected with American foulbrood, and it seems to work O. K. in every case, as far as I can see.

The method is this:

Get a frame of brood from a healthy colony, fill out the hive with drawn combs or foundation, move the diseased colony away to another stand and place the prepared colony on the old stand. In treating a box hive we would have to introduce a queen or protected cell, while in treating a colony in a frame hive we can catch the queen and let her run in on the frame of brood.

We all know that a swarm seldom or never carries the disease from a diseased colony. This works just the same as a swarm. The bees going to the fields will return to the old stand with a load of nectar, and they carry no disease with them; neither does the queen. A box hive might be moved twice, or possibly three times, in a season, and late in the fall destroyed. Two or three good colonies might be formed in frame hives from a box hive in this manner. The same method will work in changing box hives to frame hives, whether they are diseased or not.

It might be well to try this on a few colonies. I only tried it on nine or ten colonies. There might be some fault to this method which I have overlooked.

In curing a diseased colony there is no shaking on starters or handling of diseased combs, and does the same trick. Possibly a pound package of bees and a caged queen would do on the stand of a box hive. I have never tried this. They might fight unless the package was kept closed for some time. They might swear and tear around for a while if they found a frame hive and a package of bees on their old stand, but I think they would settle down in a short time, and this package could be opened.

Box hive beekeepers would surely have to have State aid, no matter what method is used. Perhaps it would be as well to burn the whole business and have done with them. However, I am satisfied that the good colonies in box hives could be saved in this way of moving them.

FARTHEST WEST IN BRITISH COLUMBIA

By Lilian E. Bland.

Here is the result of the bee season in the northwest end of Vancouver Island: Starting in April, the bees got plenty of honey for brood-rearing from dandelion, wild gooseberry, salmonberry, wild bush honeysuckle, plums, cherries and rhubarb. May 29 the honey sealed up to top

bars; then flow from wild crab, cut short by the rain this year. Practically the whole of June was wet, but bees swarmed on a row of Spanish broom shrubs, even when raining, getting both honey and pollen; the bumblebees were working the raspberries; I only saw one Italian on them. Towards the end of June they were short of stores and I fed syrup.

July 15th a heavy flow started back in the forest, source unknown, but possibly salal; flow continued for 31 days, varying in intensity; bees generally working most about 3 p. m.; temperature 60 to 63 and dull, sultry weather most of the time. July 28th the bees started to work white Dutch clover, almost a month after it started to bloom. We had some sunshine; temperature 65 to 70. They worked this clover all of August and into September, when weather permitted; also sand vetch. In August I found the bees 3 miles away in the next valley, on a small patch of white clover. This valley was full of fireweed, but the bees never went on it, although there was honey in the blossoms. I also noticed, in spring, that although the huckleberries had drops of nectar, the bees preferred salmonberry. There seemed to be so much honey that they chose what they liked best. I bought one hive in April and one in June; they were never strong; both queens averaged one full frame of brood and two frames with central patches; neither could I persuade them to raise more.

My attempts to raise queens failed. They killed the drones and removed the few queen cells I got them to start over an excluder, so I gave it up and got queens from California. These bees are furthest west, also they have only one-half range, as the Sound cuts off all bee pasture on the north. I notice they do not "bee line," but go through windfall or along the shore. They spend some of their time on seaweed, possibly getting salt.

I fancy the brooms, Spanish broom, with red and yellow flowers, I grow here would be a good investment for beekeepers even with large apiaries. They are ever green, and if clipped make fine hedge shelters. In June they are a mass of fragrant blossoms 15 feet high, and the young plants grow quickly from seed.

Increase 2, with a third queen started above excluder.

Extracted 121 pounds; aim to feed the bees up to 40 to 60 pounds for wintering. Bees made 40 per cent on capital invested, allowing frames drawn at 50 cents, increase at 10, honey at 35. Honey is 45 cents up here and I paid \$25 for a colony. I get my supplies from the U. S. A. and pay from 15 to 30 per cent duty. It pays, at that, to get hives that are cut square and will fit. I used some aluminum combs. They are a great invention.

British Columbia.

AN OLD TIME TEACHER

In looking up material for a course on the History of Botany, I ran across an item about Joseph Michael Ehrens, of Lower Austria (1767-1843),

an agriculturist who wrote of bees and beekeeping. During the Napoleonic era he established what might be called a short course for beekeepers on his estate, delivering lectures, and later established a school, which was destroyed during the time of the Napoleonic wars. After the war he purchased ground and established a higher school for instruction in apiculture in Austria. This is the actual forerunner of our short course schools in apiculture.

L. H. Pammel.

CONTRIBUTIONS TO THE MILLER MEMORIAL FUND

Acknowledged in August issue \$215.33	H. D. Murry .. 1.00	beck .. .50	H. D. Tennant.. 1.00
John H. Schlemmer .. 2.00	Carrie G. Davidson .. .15	C. A. Kuhn .. 1.00	Gordon Gore .. .10
Burt Ogburn .. .50	Wm. Zapalach .. .25	Geneva Stroete.. 1.00	R. J. Radike .. 1.00
J. L. Howard .. 3.50	Reginald Morris .. 1.00	C. H. Morgan .. 1.00	A. A. Woodward .. 1.00
Jack Chadwick .. .91	R. W. Sommerfeld .. 1.00	Jno. Hoag .. 1.00	M. C. Osborne .. .50
E. N. Murray .. 1.00	W. E. Joer .. .50	A. J. Miller .. .50	Phillip N. Townsend .. .25
Aaron Rippey .. 1.00	Oscar Gaultney .. 1.00	Frank Schiugle .. .25	J. I. Ulrich .. 1.00
Leonel W. Newell .. .25	R. W. Watson .. 1.00	A. F. Rexroth .. 1.00	J. D. Hull & Bro. .. 1.00
E. Gressman .. 1.00	R. R. Reppert .. 1.00	F. E. Franklin .. 1.00	O. I. Lewis .. .50
Chas. McKinney .. 1.00	Virginia Smith .. 1.00	Clayton C. Hoover .. 1.00	Miss C. E. Jordan .. 1.00
H. F. Wilson .. 2.00	C. S. Rude .. 2.50	N. Palmer .. .50	Mr. & Mrs. Alfred Hengsh .. 1.00
Wis. State Beekeepers' Ass'n .. 10.00	Dr. M. C. Tanquary .. 5.00	T. W. Livingston .. 5.00	W. C. Boor .. 2.00
Wis. Honey Producers' Co.-op. Ass'n .. 5.00	Sternberg Bros. .. 3.00	Chas. L. Ruschill .. 1.00	Wm. H. Miller .. 1.00
H. G. Querin .. 2.00	T. P. Robinson .. 5.00	Wounded Soldiers, per Edwin J. Anderson .. 8.00	S. H. Johns .. .20
E. M. Barteau .. 1.00	Jean Hornbuckle .. 2.50	Benj. B. Jones .. 1.00	A. G. Karche .. 1.00
Edward Roost .. 1.00	G. F. Roberts .. 1.00	D. C. Gilham .. 1.00	G. Brundage & Sons .. 1.00
Frank Abbott .. 1.00	T. W. Burleson .. 5.00	Harvey J. Armbrush .. .25	Scharff Co. .. 1.00
Allen King .. 1.00	W. G. Stephens .. 2.50	G. H. Peterson .. 1.00	Nina Scott .. 1.00
Elsie Fischhaber .. 1.00	L. H. Terry .. 1.00	Hildier J. Moninger .. 1.00	Mr. & Mrs. F. D. Linneus .. .50
Herbert M. Bachman .. 1.00	L. R. Nolen .. 5.00	Chas. LaRue .. 1.00	Axel Holst .. 5.00
H. Delmarter .. 1.00	S. W. Bilsing .. 3.00	Byron Scheid .. .50	B. J. Thompson .. 1.00
K. D. Raker .. 1.00	J. W. Barkmeyer .. 2.50	F. Halman .. 1.00	Lorain Co. Beekeepers' Ass'n .. 1.00
G. F. Taylor .. 1.00	J. B. King .. 2.00	W. C. Hare .. 1.00	per E. M. Vincent .. 5.00
Connecticut Beekeepers, sent in by L. B. Crandall .. 50.00	Levi Zalegg .. 1.00	Tupper Bros. .. 1.00	Cass Schoonover .. .50
Geo. D. Shafer .. 2.00	E. G. LeSturgeon .. 10.00	C. F. Parker .. .10	C. W. Hunsey .. .79
E. J. Delamarter .. 1.00	Geo. Morrison .. .35	R. A. Dehmel .. .10	W. H. Lewis .. 1.00
M. D. Van Hulen .. 1.00	Sophus Olsen .. .25	David R. Johnson .. 1.00	J. N. Beckley .. 1.00
R. B. Grout .. 1.00	W. S. Pangburn .. 1.00	A. O. Jones .. 2.00	Jas. W. Wiley .. 1.00
C. F. Davie .. 4.48	Wm. B. Barnard .. .50	Mrs. Ethan E. Whiting .. 2.00	E. J. Ladd .. 3.00
A. O. Comire .. 1.78	Edw. W. Kriwitz .. .10	C. C. Cook .. 1.00	C. Payne .. .50
L. C. Root .. 5.00	F. H. Thiele .. .25	C. A. Billheimer .. 1.00	J. F. Martin .. 1.00
H. M. Dorsheimer .. 1.00	D. L. Ulman .. 1.00	Jno. Lynch .. .25	W. M. Forster .. 1.00
D. Barone .. 5.00	Samuel Heashman .. .25	Wm. F. Baehr .. 1.00	Lide Martin .. 1.00
Geo. A. Phillips .. 1.00	Flora McIntyre .. 1.00	F. Dobert .. 2.00	Bernard Kunz .. 1.00
H. H. Moe .. 1.00	G. T. Rawls .. .25	H. W. Vankirk .. 1.00	A. McCulley .. 1.00
Paul D. Roban .. 1.00	Francis K. Caldwell .. .25	A. F. Paterson .. 1.34	C. Havelope .. 1.00
W. L. Gray .. 1.00	R. N. Greenfield .. 2.00	Edw. N. Marsh .. 1.50	J. R. Spence .. 1.00
Eastern Mass. Society of Beekeepers .. 36.00	G. H. Woodberry .. 1.00	Chas. Frickel .. 1.00	Geo. Henderson .. 1.00
J. Bass Keith .. 1.00	Frank M. Battye .. 1.00	C. E. Corson .. 1.00	M. H. Courtney .. 1.00
Fred Bratton .. 1.00	Theo. Melder .. 1.00	Victor Bielke .. 2.00	C. Hanslope .. 2.18
M. E. Hamilton .. .45	H. L. Jones .. 1.00	T. Parkin Scott .. 1.00	M. B. Hinton .. 1.00
J. W. Acree .. 1.00	N. C. Carpenter .. .50	Arthur O. Hendrick .. 1.00	G. W. Troxell .. .50
W. C. Greenleaf .. .50	Geo. Kirk .. 1.00	David E. Wood .. 2.00	F. B. Loomis .. 2.00
J. M. Graves .. 2.00	R. E. Newcomb .. 5.00	Fred Canoles .. 1.00	F. C. Wiggins .. 1.00
Chas. F. Baile .. 5.00	Dr. C. G. Luft .. 1.00	W. Denison .. .50	Elmer Benge .. 1.00
R. L. Veil .. 1.00	A. B. Swanson .. .25	W. R. Elwood .. .25	Name Unknown .. 5.00
Etienne Giraud .. 9.00	R. B. Hunter .. .25	Miss M. L. Bland .. 1.00	Geo. W. Bader .. .50
Will H. Gray .. 6.00	Don McPherson .. 1.60	Alameda Co. Beekeepers' Ass'n, per Cary W. Hartman .. 35.00	J. H. Beatty .. .50
J. E. Pleasants .. 2.00	Jno. F. Stoughton .. .50	T. P. Ferhuse .. .50	Chris. Allen .. .85
Martin Wachter .. 2.00	J. L. Hood .. .10	Gertrude Ferhuse .. 1.00	Muriel W. Beers .. 1.00
V. C. Davis .. 1.00	Ambrose Peet .. 1.00	Chas. F. Coombs .. 1.00	Fred F. Teets .. .10
Lee O. Addams .. .25	Jennie R. Bentley .. 1.00	J. H. Kennan .. 1.00	E. Welton .. 1.00
William Turner .. .25	Jos. U. Schimpols .. 1.00	Geo. H. Nichols .. .25	J. V. Babcock .. .50
Ray Pfeueger .. .50	N. C. Jensen .. 1.00	Mr. & Mrs. E. W. Foster .. 2.00	Burr Leslie .. 1.50
R. E. King .. .25	Jno. L. Miles .. 1.00	F. R. Helmick .. .25	S. F. Ranney .. 1.00
Mrs. J. W. Swezey .. 1.00	A. A. Woodward .. .35	Mrs. S. R. Dillman .. .25	Theo. Hackbarth .. .50
Frank Talbot .. 1.00	Mrs. S. A. Chapman .. .25	Henry S. Nixon .. 2.00	H. C. Coventry .. 1.00
E. B. Ault .. 1.00	Henry Froehlich .. .50	C. F. Rife .. 1.00	Jos. Lindt .. 1.07
S. A. Griffith .. 1.00	J. A. Bishoff .. .50	J. H. Allison .. 1.00	J. M. Crudgington .. .50
T. F. Coffman .. .50	J. F. Michael .. 1.00	J. F. Moore .. 5.00	Clyde Mawhinney .. 1.00
E. W. Cothran .. .30	Wm. I. Corlidge .. .25	Edw. Sterner .. 1.00	Harry McComb .. 1.00
P. Provencal .. 1.00	Leland Snyder .. .50	Edmund Lenark .. 1.00	J. R. Bullock .. 3.00
Frank Reed .. 1.00	W. H. Conner .. 1.00	Robert Kuhn .. .50	R. Haworth .. 1.00
Otto Puhlmann .. .16	Dr. E. Kohn & Sons .. .70	P. Petrequin .. .50	C. W. Hayes .. 1.00
Aug. Pape .. 1.00	C. A. Lincoln .. 1.00	Mr. & Mrs. W. H. Zent .. 2.00	Emmett Deere .. 1.00
Mrs. Ed. Castleman .. .25	Paul Coggins .. .25	F. T. Godfrey .. 2.00	Mary L. Comstock .. 2.00
H. B. Park .. 6.00	Lynn B. Gilmore .. .50	Edw. P. Tremper .. 2.00	Geo. Kay .. 2.63
A. M. Hasslbauer .. 1.00	Miss L. E. Spaulding .. 2.00	W. W. Foster .. 1.00	Wm. Phalen .. .25
	J. R. Coulson .. 1.00	Lawrence Ginter .. .50	Dr. G. H. Bufum .. 5.00
	O. L. Zody .. 1.00	Jno H. Kitchen .. 1.00	Herman Rauffuss .. 5.00
	F. L. Day .. 1.00	Jas. Maxwell .. 1.00	Wm. Lindenmeier .. 2.00
	C. H. J. Baum .. 1.00	Geo. J. Giersmann & Family .. 1.00	C. E. Drexel .. 2.00
		Wm. McPherson .. .75	F. E. Johnson .. 1.00
		J. C. McCubbin .. 1.00	J. R. Miller .. 2.00
		H. L. Pearson .. .25	Mrs. Parker .. .75
		Ancel F. Marble and Geo. Dodds .. 1.00	Newton Boggs .. 5.00
		Ezra Mayer .. 1.00	H. D. Rauffuss .. 1.00
		Jesse Nigh .. .50	M. L. Henthorne .. 1.00
		Clarence E. Payne .. 1.00	A. J. Kritchfield .. 1.00
		T. McLaine .. 1.00	Isaac Walter .. 2.00
		J. H. Zak .. 1.00	Dr. C. P. Gillette .. 1.00
		Clyde W. Reed .. 1.00	Mrs. Mae Doubleday .. .50
		W. J. Eaken .. .20	Miles Crawford .. 1.00
		C. M. Alvord .. 1.00	Alabama State Association .. 12.20
		J. Stuart Scofield .. 1.00	W. H. Humphries .. 3.72
			Chas. E. Welty .. .50
			Fox River Valley Beekeepers' Ass'n .. 5.00
			Dadant family .. 25.00

Frank Murray..... 2.00	J. D. Caldwell..... 1.00
I. B. McMurtry..... 1.00	F. H. Keeley..... 1.00
Floyd Markham..... 1.00	A. Herron..... 1.00
C. H. Stranger..... 1.00	Mrs. Manspeaker..... .80
James A. Green..... 3.00	J. E. Winter..... 1.00
Raymond Green..... 1.00	H. A. Todd..... 1.00
Arthur O. Green..... 1.00	M. C. Hiskey..... .25
John Stotts..... 1.00	C. S. Sieg..... 1.00
S. B. Fralicher..... 1.00	C. E. Wallace..... 1.00
J. E. Harris..... 1.00	John Hansen..... 1.00
J. M. Griffith..... .50	C. E. Lindsay..... 1.00
Grace V. Smith..... 1.00	C. E. Kendle..... .50
F. M. Snider..... 1.00	John Pugh..... 1.00
Mrs. E. F. Fen- nell..... 1.00	F. C. Drexel..... 5.00
E. F. Koch..... 1.00	Total..... \$330.79
C. E. Fitzpatrick 1.00	

LETTERS FROM A NOVICE

From Mary Bob to Her Adviser

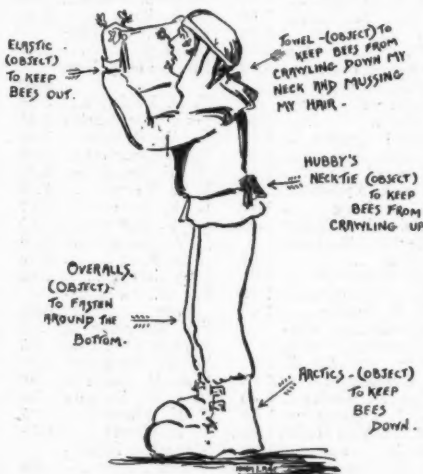
Hell, of course, is paved with good intentions, but this place of mine is simply swamped with them, and I should, long ago, have written you a nice, formal letter telling you that the queen was received and, following such and such advice, such and such things happened. But they didn't, and I won't. Today has been a sample of nearly every day. Crawled out of bed some time this morning; Bob said if I would go to the village for the papers and to see if the queen was there, he would get the breakfast. On the way down the carburetor plugged up on a hill and I had to back down a quarter of a mile to a wood road where I could turn the car; by that time the carburetor worked all right, but I went on back home to be sure, and started again. Found the queen at the postoffice, and came home with Her Majesty riding in state while I played chauffeur.

Bob and breakfast were waiting for me on the front porch, and we read the papers and talked and munched until 2 p. m., and then Bob challenged me to a game of quoits. Pitched for an hour and came in and made my room tidy. "Company" came to pitch quoits and I sat on a rock and watched them. Came in and gave Bob's room a lick and a promise. Two more boys came as the first two left. Cooked supper and washed breakfast dishes while it was cooking; chased horses again and pitched another game of quoits. Then the moon came up and I thought of the queen bee out in the automobile all that time. Luckily, the top was up and the sun hadn't cooked her, so I took her into the house until morning.

I started out then with what promised to be a perfect day. Transplanted iris until Bob called me to breakfast; finished breakfast and the papers, came in the house and sat on a wasp. Shimmied around for the ammonia bottle and made Bob touch up the injured region until the pain was eased; all of which reminded me that the bees should be attended to at once. So I put on overalls, smock and arctics, tied my head up in a towel, and sallied forth, smoker in hand, and looking like a sick Arab and feeling like I had been hit with the flat side of a shovel.

When I lifted the super off, nearly the whole top of the frames, between

super and body, was covered with honey, built in solid between the two, and I had to scrape that off before I could lift out a frame, and then there was a mess of honey over everything. I suppose I should have had more supers on, so they could have put that honey in the sections instead of sticking it in between where it only made trouble. All the sections were full and I got out 63 good sections besides what I broke getting them pried loose. Had one awful time finding the old queen; the hive was so full of bees and the frames so full of brood, the two outer frames were full of honey and the third frame on either side was half full of honey. The queen was found on our second trip through the frames. I hated to kill her, she was such a faithful old thing, but I pinched her, dropped her inside as you showed me, shouted "The queen is dead, long live the queen," placed an empty super on top, laid the queen cage in, replaced a half-filled



Mary Bob ready to visit the bees

super and left. There were no directions with the new queen, so I didn't know how to get the brute located in the hive. * * * *

Two days afterward I removed the top super and, in setting it down raked off a large quantity of comb and thousands of bees that had attached themselves to the bottom of that super in two days. Of course, they fell in the grass, and it was a mess, bees and grass and honey all mixed up.

The new queen was out of her cage. I put a sheet down and smoked the bees out of the grass, but didn't find the queen among them. I looked through the hive, but couldn't find her there, so I removed the extra comb from the super, replaced it, and came away. If queenie is there, she's there, and if she isn't, she isn't, and that's all there is to it. I couldn't have told her in all that mess of bees, anyway, she was so small. When this honey flow is over, I'll look again; I think the super will be filled by that time.

Some days later; and still the honey flow continues. I wonder if that super isn't full, and I wonder how the new queen is? The bees are working on goldenrod and asters. I have

counted seven different asters—or what I would class as asters. No near buckwheat fields this year. Our hill is a mass of bloom; all shades of blue, white and yellow, with the red leaves and berries of the sumac. It is very beautiful. Today I can see the blue waters of the Sound flashing. Of course you are coming up this year; we will be here; no danger of us getting away, for we are broke and no jobs in sight.

Do the bees hibernate during the winter? and if they do (like bears), how do they eat the honey that is stored? These bees must have at least 30 pounds of honey in the lower frames; and you told me to feed them 10 pounds of syrup, 40 pounds of honey to eat in their sleep! How do they do it?

Later: Good intentions? Yes, and more trouble on the slippery way. Those bees chucked everything full of honey worse than before, and I had a time getting the frames out to look for young brood and eggs, as you told me. The frames stuck fast; the bees got all "het" up and acted nasty. The smoker went out, so I excused myself long enough to light up again and then began to pry the fourth frame loose, knowing the first three would be solid full of honey. Well, I got it out, and it was two-thirds full of honey, or what I took to be honey, sealed over, and about every other cell had white stuff in it, but no queen cells. Thinking that maybe I could figure it out better by looking at another one, I tried to take out the fifth frame, but just then a bee landed on my cheek near my ear, another sat down under my eye, and a third near where No. 1 had paid his attention. (Of course, you would advise a veil; so would I if I could see through the blessed thing). I looked about wildly for help, but the boy who usually blows smoke on me was helping a neighbor fill his silo, so I jammed her into high, shoved down hard, slipped the super on, scrunched on the lid and beat it for the ammonia bottle. I really cannot say, at this date, whether the new queen "took" or not, but will try it again tomorrow. Some day I will be brave and finish a job when I start it, regardless of bees with radical inclinations.

At any rate, this is the first time in my life that I haven't swelled up; whether it was due to the application of the ammonia bottle and other cosmetics, I cannot say, but I've been around the golf course twice now, with Bob, and I haven't swelled yet. I think it was the ammonia—or maybe I swelled so much before that now the poison can't touch me. Or, maybe, again, I got so nice and comfortable before I began work, on Bob's cider brandy and apple jack that the bees couldn't compete.

Here is a sketch of me when the glorious time began and the bees began to pay me too much attention:

Next day: All is quiet, every cell in the hive is full of honey, but there is no queen, no eggs, no brood, no queen cells.

What shall I do? I hate to lose this colony that has made 193 pounds of

honey this summer for a novice. Do you suppose I can get another queen as late as this? And will it be any good to put her in if I do get one. You got me into this mess and you'd better tell me how to get out.

Mary Bob.

LEAGUE NOTES

The annual meeting of the American League will be held at Salt Lake City, Utah, January 30-31, 1922. Messrs. Henager, Anderson and Terriberry will have all the arrangements made for the meeting and promise us a fine time. The Utah Association is one of the League's best boosters. In response to the invitation sent out to the League Representatives and Associations not as yet affiliated with the League, letters have been received indicating a very great interest and that many Associations not members will send representatives to the meeting.

The advertising campaign of the League is still bringing results. Demands for the honey booklets are large and many grocers and honey sellers are buying the booklets in large quantities. One large honey producer has, to date, purchased 5,600 of these booklets. Another firm in a state which is almost antagonistic to the League, distributed over 500 copies of the League recipe book and says that it caused the sale of two carloads of extracted honey.

Frank Rauchfuss, of the Colorado Honey Producers' Association, Denver, Colo., is the Chairman of the Committee on grading and standardizing. In making up his report for the League meeting, Mr. Rauchfuss finds, that the grades used for honey,

especially the color grades, differ in various states. Just at the present time he is collecting sets of standard colors from different locations and, after he has completed the collection, he will establish a standard color grade which it is hoped the League will adopt at its annual meeting. Mr. Rauchfuss desires the co-operation of every one interested in this proposition and asks those who receive a set of the containers to fill them with the standard grades which they use and return them to him. It is only through uniformity that a permanent honey market can be built.

O. L. Hershiser's Reward Poster against theft is popular with the beekeepers. We have distributed large numbers of these and have taken in two individual members who wish the benefit of using this notice.

Many of the State Associations are holding their meetings within the next two months. Let every beekeeper who would like to see the selling of honey made a twelve-month proposition, the price standardized, freight rates reduced and favorable legislation secured, urge his association either to retain or obtain membership in the American Honey Producers' League. The League has accomplished much, as the present brisk demand in honey is undoubtedly due to the advertising campaign and the League is stronger now than it ever has been. It intends to put on a bigger advertising campaign with the beginning of the year and its other activities are progressing nicely. Just as soon as the League receives a sufficient number of reports, it will issue its bulletin monthly instead of once a year, as it has done in the past.

H. B. Parks, Secretary.

3. Queens reared after September, in this climate, run great risks of never being able to mate. We never succeeded in securing matings after that month.

American Bees

1. What is the bee most used in America for honey production? Mr. Hawkins, of the G. H. Lewis Co., in the Bee World, says it is a cross.
2. Is it a separate breed which has been produced from the original Italian, or is it kept pure by continued importation? Of course I am speaking of the ordinary American three-banded.

ENGLAND.

Answers.—1. The bee most used in America for honey production is the home-bred Italian bee. The large practical beekeeper tries his best to keep the stock pure. But he often has mismatings. That is why Mr. Hawkins' statement is very close to the facts. But we all recognize that the hybrid of any race does not have fixed characteristics. So each man tries to keep the bees pure and breeds mainly from colonies of pure bees that have shown the best honey-producing qualities.

2. The queen breeders, as a rule, try to keep importing a few bees from Italy. But the greater number of queens reared are from the best home-bred Italians. Some good breeders have no black or hybrids at all in reach of their bees. There are some beekeepers who are trying other races, such as the Carniolan and the Caucasian, and are well pleased with them but these are the exception and not the rule. I believe that the time is not far distant when there will be few bees in this country outside of pure Italians and we may be able to have them as good as in their native country. Thus far, the tendency has been too much in the direction of very yellow color.

Inspection Funds

Three months ago we organized a beekeepers' association in Solano County and were facing a lot of American and European foulbrood. We asked the Board of Supervisors to give us the money for a man who would put his time out in the field helping and advising how to fight the above diseases successfully. They allowed for a bee inspector only \$200, which did not last long. Consequently we did not fight foulbrood to the finish. We want to have an inspector the year round. Can we make a petition, and should such a petition, if made, bring the necessary results? CALIFORNIA.

Answer.—If your Supervisors had the power to allow you \$200 they surely have the power to allow a sufficient sum. Besides, it would be a very poor policy for them to allow knowingly an insufficient sum to cure and prevent diseases in a State where beekeeping is of such importance as it is in California. We believe that, if you petition to this Board in sufficient numbers and have competent men to present the matter and explain it thoroughly to them, they will be more than willing to help you out with a sum sufficient to put an end to disease shortly. It will require energetic action and concerted work in order to succeed. So we urge you to get a majority of your beekeepers to sign the petition and ask for as much as you are likely to need.

We will be glad to hear how you succeed. We are all interested in this.

Nuclei or Packages

Which would be the better investment, bees in 3-frame nuclei or in 2-pound packages? I would get them about the 29th of April. All things being equal, which would I build up most rapidly? I would use drawn combs entirely, and feed.

Answer.—I am afraid that the proper reply to your question depends upon the condition of the nucleus. If the nucleus is strong in bees, has plenty of brood and is in general first-

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

Wintering—Late Queens

1. Each of my colonies is in a standard hive body, the bottom board of which rests upon a slab of undressed marble, or stone, which is about 2 or 3 inches thick. Each stone is flat upon the ground, but at the back end a block of stone or short piece of water pipe is placed to give the hive a proper slant.

Do you think I should use several inches of packing between the hive bottom and the stone upon which it rests? Will it prove a help in keeping the bees protected for me to raise the stone 2 or 3 inches from the ground. Of course, at the sides and top I expect to use from 4 to 5 inches of leaves, sawdust or planer shavings, for packing each hive.

2. Some men tell me it is a good plan to also place a shallow empty super on the top of each of the brood chambers when packed for the winter. I suppose the shallow super is left empty of frames and is probably filled with packing material. Or is it advisable to put the feeder in the shallow super and at times, when mild days come and bees fly, see that artificial feed is given them in this super?

3. One of my colonies is going to produce several queens from cells in the brood chamber in a few days. Will the new queen be able to get down to work and lay eggs before the colder weather comes, so that young bees will inhabit the hive for the winter period? INDIANA.

Answers.—1. I certainly believe in protecting the hive at the bottom. Did you ever live in a house, built on piles or stakes, so the air could pass under it? If you did, you can answer the question readily. It is a good plan to have the hives up from the ground for spring and summer, to keep them out of the moisture, but when winter comes, the space under the hive is as likely to make the bees uncomfortable as any other open space, if not more so. The sun will shine on the front of the hive, during the day but it will not shine under it. So be sure to put some protection (we use forest leaves) under your hives, as well as around them.

2. We use a cap above our brood chamber, which remains on all winter, and we fill this cap with leaves. An empty super will fill about the same purpose and may likewise be filled with absorbents, if you do not pack your hives otherwise. We deprecate the use of a feeder in cold weather. Your bees should have enough food to carry them through and remain as quiet as possible during the cold season. A feeder in the cap or upper story will cause too much circulation of air and loss of heat.

class condition, I don't believe the 2 pounds of bees can compete with it, especially if the prospect of honey is remote.

But the greatest objection to the nucleus is the cost of shipment, for a nucleus is much heavier than a package of bees, and expressage is very expensive. All considered, I believe I would prefer the 2 pounds of bees, taking for granted that either the bees or the nuclei must be bought from the South. It is well understood of course, that the bees must have a queen. In your circumstances, with the use of drawn combs already supplied, I would take the 2 pounds of bees with queen.

Vinegar

1. I have about 25 gallons of inferior honey which I wish to make into vinegar. If made now and stored where the temperature ranges between 45 and 60 degrees, will the proper action take place?

2. You recommend using grape juice to start fermentation; about what amount would be the minimum for a 40-gallon barrel?

NEW JERSEY.

Answers.—1. No, the temperature must be at least 70 degrees above, in order to facilitate fermentation. Whenever the temperature goes below 70 degrees, the fermentation is interrupted or delayed. A good place for fermenting vinegar water, in winter, is next to the kitchen stove.

2. We have never kept close account of how much fruit juice to use in order to promote fermentation. But probably as small an amount as 20 pounds of grapes would be sufficient for a barrel, as those germs reproduce rapidly in proper conditions. Fermenting cider would probably be as good.

Bear in mind that an alcoholic fermentation always precedes the acetic one. But a fact, that very few of even our best posted prohibitionists are aware of, is that the alcoholic fermentation never permits a greater degree of alcohol than a fraction over 14 per cent in any nat-

urally fermented liquid, for the alcohol, in that proportion, destroys all the germs of fermentation. That is why it is not advisable to use more than 1½ to 2½ pounds of honey to a gallon of water, in order that the alcoholic fermentation should stop before the germs of acetic fermentation are destroyed.

Bees Die in Shipment

During the latter days of August, after the main honey flow was over in southwestern Kansas, I had three colonies of high grade Italian bees shipped from Elk County, Kansas, to Kearney County. The bees were in ten-frame hives. The entrances of the hives were screened, the tops were removed, a 2-inch rim was built around the top of each hive to give the bees extra room. The tops were screened. There was very little honey left in the hives, but sufficient to feed the bees while on the road. The frames in the hives were fastened apart by bent wires inserted at the bottom to hold them rigid so that the combs could not bump together. The bees left Howard in good condition. They left the shipping point about 7:30 a. m. and reached their destination during the following night. They arrived all dead. I do not know what caused the death of the bees, but according to the train schedule, they had to wait at one junction from three to four hours during the middle part of the day, and my theory is that they were left on a truck in the sun. Each hive was plainly marked, "Do not leave in the sun." Can I expect to recover the value of the bees from the express company? KANSAS.

Answer.—Our conclusions would be the same as yours, especially if the combs were broken down, although the bees might have died without the combs breaking.

You are undoubtedly entitled to damages, and we believe you can get them by applying to the company with the full facts. In the olden days, of the U. S. and American expresses, the companies were in the habit of fighting all claims and carrying the matter from court to court until the customer was glad to quit, but there is a big improvement in this matter, and

we believe that if the matter is made clear to them they will pay a reasonable damage.

(My opinion is that the hives were piled one on top of another in the express car, thus smothering the bees. I have lost bees when shipped by express in just this way. Cross pieces should be placed across hives to go by express in such a manner as to make it impossible to close the hives tight when piling in this way.—F. C. P.)

Moving—Increase

1. I have some bees that I wish to divide next spring and move to a new location. Which is the best, to move the queenless part to the new location, or the part with the old queen? My new location is three or four miles away.

2. Which do you think is the cheapest and best in the long run, to use the Demaree plan of raising the brood above a queen excluder and letting the bees form queen cells, give the queenless part of a division a queen cell, or buy a laying queen and introduce to the queenless part? I have introduced several queens without a single failure. VIRGINIA.

Answers.—1. If you wish to move all your bees, better move them before dividing them. But if you wish to keep a part of them, I would advise keeping the queenless part where your home is, because this part will need closer watching than the other. In making the division, when you move them 3 or 4 miles away, it is probable that very few of the old bees would return, so it would do no harm to move them, keeping the young bees at home. Be sure that each half of the division has plenty of bees to care for the brood. The queenless part needs the most bees.

2. Rearing your own queens is a little the better plan, if you have good queens to breed from. Otherwise, buy your queen from some reliable breeder. There is always some chance of queens getting hurt in transit, yet many of us buy our queens rather than go to the trouble of raising them.

ALUMINUM HONEYCOMBS

This modern apiary appliance is being used by beekeepers in many states and countries

Buy these combs from your regular dealer. Any bee supply dealers can furnish them. They are now carried in stock by the following:

IN THE EAST:

G. B. Lewis Company, Albany, N. Y.
Fred W. Muth Co., Cincinnati, Ohio.
G. B. Lewis Co., Lynchburg, Va.

IN THE NORTH:

Dadant & Sons, Hamilton, Ill.
A. G. Woodman Co., Grand Rapids, Mich.
G. B. Lewis Co., Watertown, Wis.
Standard Lumber Co., Winona, Minn.

IN THE WEST:

Chas. H. Lilly's Co., Seattle, Wash and Branches.
Western Honey Producers, Sioux City, Iowa.
Colorado Honey Producers' Association, Denver, Colo.
B. F. Smith, Jr., Fromberg, Mont.
G. B. Lewis, Co., Wichita, Kans.

IN THE SOUTH:

J. J. Wilder, Waycross, Ga.
G. B. Lewis Co., Memphis, Tenn.
Texas Honey Producers' Association, San Antonio, Texas.

LOWER PRICES

For the season of 1922 the prices on Aluminum Honeycombs are greatly reduced.

Modified Dadant or Jumbo frames-----60c each
Langstroth or Hoffman frames-----50c each
Shallow extracting, any style-----45c each

The above prices are f. o. b. factory or dealer's stock. Write to your dealer for quantity discounts on orders of 500 combs or over.

Be sure to buy the combs manufactured in Texas by

THE ALUMINUM HONEYCOMB CO. OF TEXAS
SAN ANTONIO, TEXAS

ODDS AND ENDS

JANUARY CONVENTIONS

Nebraska

The Nebraska beekeepers will meet at Lincoln with the organized agriculture sessions, on January 3.

Pennsylvania

The Pennsylvania convention will be held at Harrisburg on January 24 and 25.

Massachusetts

At Horticultural Hall, Boston, on January 18, will occur the meeting of the Massachusetts State Beekeepers' meeting.

National

The National Honey Producers' League will meet at Salt Lake City, Utah, on January 30 and 31.

New Jersey

New Jersey beekeepers will meet at Trenton on January 12 and 13.

Missouri

The Missouri meeting will be at Columbia, January 16-20.

Tennessee

The Tennessee convention will be held at Nashville on January 25-26.

Oregon

The Oregon beemen will gather at Pendleton January 26-27.

Virginia

Virginia will hold two meetings, at Lynchburg January 18, and at Richmond on January 17.

Idaho-Oregon

The Idaho-Oregon Association will meet at Ontario, Ore., January 22 and 23.

Another New Association

The beekeepers of the Pittsburgh, Pa., vicinity, formally organized the Allegheny County Beekeepers' Association, Saturday afternoon, November 26. Forty beekeepers from Allegheny, Washington and Butler Counties were present, and indications are that the charter roll of membership will contain several hundred names before it is closed.

An Island for Queen Raising

The Victorian (Australia) Bee Journal reports the efforts of its government apiculturist for the establishment of a queen-rearing apiary on Groote Island, 30 miles off the coast of North Australia. It is hoped to obtain favorable results, as there are no bees on the island at present.

New California Association

A meeting was called to order at 10 a. m., November 4, in the State Assembly Hall at Exposition Park, with Geo. Emerson as temporary presiding officer. The purpose of the meeting was to get all beekeepers into an organization for their mutual benefit, non-partisan, non-sectarian, non-sectional, something that is very much needed in such an important honey center as Southern California.

Many of us labored hard and long to bring about such an organization, and we think our labor has been crowned with brilliant success. We start with about 100 members, and expect to take in many more. The name adopted is "Fraternal Beekeepers of California." We expect the organization to fill a need that has existed in the south end of our State for many years. Mr. F. R. Buchanan, of Glendale, was chosen President, and Mr. A. B. Shaffner, of Los Angeles, was chosen its Secretary for 1922.

G. W. Bercaw.

The Remedy is O. K.

While packing bees for winter I got a bad sting near the eye. A drop of carbolic acid on the point of a toothpick, applied on the spot, prevented all swelling. This is the first time I ever tried a remedy, and it worked fine. Thanks to the beekeeper who reported it in the American Bee Journal.

Amos Burhans.

Bees in Court Again

Lee Cooley, a Kansas City beekeeper, was arrested on the charge of maintaining a nuisance and fined \$50 in the police court. One of his bees was alleged to have stung a child five times. His case was appealed to the circuit court and interested beekeepers rallied to his defense. It was easy to prove, of course, that it was impossible for the same bee to sting five times.

MONEY SAVED

BEE SUPPLIES

TIME SAVED

Roots goods at factory prices with WEBER'S Service

Send us a list of your wants and we will quote prices that will save you money

C. H. W. WEBER & CO., 2163-65-67 Central Ave., Cincinnati, O.

FOR SPRING DELIVERY

One vigorous Italian queen, one frame of emerging brood, one pound bees. Price complete, f. o. b. Bordelonneville, \$5.00. Additional frames or broods, each, \$1.00; additional pounds bees each, \$1.00. Queen introduced and laying enroute to you. Safe delivery and satisfaction guaranteed. No disease, reference given. Orders booked one-fifth down, May delivery.

Read what this customer says:

"Mr. Jes Dalton, Bordelonneville, La. Enclosed is deposit on 2 packages for May delivery. The one package I got last spring increased to 14 colonies and gave me 85 pounds of comb honey. Respectfully, A. Russell Paul, Belvidere, N. J."

This shows what these balanced packages can do. And this:

"St. Thomas, Virgin Islands, U. S. A. Mr. Jes Dalton, Bordelonneville, La. Dear Sir: The 2 packages arrived last night and upon examination I found about a dozen dead bees in one and about 200 in the other; quite a bit of sealed brood, some eggs and small larvae. Very satisfactory considering the length of the shipment. Both queens had laid en route and there was plenty of honey in the combs. Yours, Axel Holst"

This shipment went by rail via New Orleans and New York, thence by steamer via Porto Rico to the Virgin Islands; were in the case 23 days in August. How is this for delivery? If they survived this trip in good condition, they will go any place in the United States. Send for address of other satisfied customers. Complaints settled through the American Bee Journal.

Be sure to mention the American Bee Journal when writing.

JES DALTON, Bardelonneville, La.

Judge Johnson, after hearing the case, ruled that the ordinance applying to bees was unconstitutional and ordered that the fine be remitted.

"Every Step in Beekeeping"

"Every Step in Beekeeping" is the title of a new book of 170 pages of material first printed in Country Gentleman by the Bobbs-Merrill Company of Indianapolis. It is large print and has eight chapters and 31 illustrations. It is an attractive book, in pleasing style.

Written by the former State Entomologist of Indiana, Benjamin Wallace Douglas, it should be authoritative. However, we could hardly recommend it without calling attention to its many inaccuracies.

For instance, the author states that bees injure sound fruit, when the opposite has been recognized by all authorities. He also states that the treatment is the same for European as for American foulbrood and "consists in the removal of all infected and infecting material from the colony." When European foulbrood first made its appearance there, were many who shook the bees, as for American foulbrood. However, such treatment now would be regarded as the height of folly.

The author also states that warm days and warm nights are especially conducive to nectar secretion, whereas our best educators inform us that warm days and cool nights are the desideratum.

Another statement is that sweet clover is becoming so general in dis-

tribution that its honey is mixed with the white clover honey to such an extent as to "practically eliminate white clover honey from the market."

Other statements are that a queen would just as readily lay in comb-honey sections as in brood combs; that white clover is a biennial; that young queens once fertilized always lay fertile eggs up until their death, and several other assertions which would not likely be approved by the best authorities.—M. G. D.

Georgia State Entomologist Dies

A. C. Lewis, State Entomologist of Georgia, died on October 26. Mr. Lewis had been in poor health for some time and in a fit of depression committed suicide by taking poison. Mr. Lewis was in charge of bee inspection for his State.

Whitehead to Wisconsin

L. P. Whitehead has been appointed Extension Apiculturist of the University of Wisconsin. From newspaper clippings we learn that he has already addressed a number of gatherings of Wisconsin beekeepers. The organization for the beekeeping work in Wisconsin is among the most extensive in the country.

The League Booklet

The American Honey Producers' League is distributing an attractive booklet of 21 pages, which gives information about the production and care of honey and a number of carefully selected recipes for its use. This

booklet is sent free to housewives who answer the advertising of the League which is appearing in the magazines.

Copies may be obtained by addressing the Secretary, H. B. Parks, San Antonio, Texas.

Bees Must Have License in Utah

According to newspaper reports from Utah, the last Legislature of that State passed a law requiring every person having one or more colonies of bees or one or more hives containing combs, to register these in the office of the Commissioner of Agriculture and obtain a license.

The writer fails to understand why it should be necessary to license bees. Are they classified with dogs among domestic animals, or is the beekeeper placed in the same class with the operator of an enterprise regarded as of questionable moral influence requiring public officials to keep an eye on him?

Good Season in Australia

A letter from W. S. Pender conveys the information that Australian beekeepers are enjoying a fine season. He states that the honeyflow started last autumn, continued through the winter and promises to last till Christmas. After that date they expect other flora to be available to carry them over till another winter. (Their season is the opposite of ours). Some big averages will result, as high as 500 pounds per colony, he estimates. The price has fallen in that country, but is still 11 to 12 cents.

PATTERSON & WINTERS QUEENS

Early Order Discounts for 1922 on Queens and Package Bees

Orders received during November, 1921--10%
Orders received during December, 1921-- 8%

Orders received during January, 1922-- 6%
Orders received during February, 1922-- 4%

Orders received during March, 1922----- 2%

One fourth cash with order, balance before shipment.

QUEENS

1 untested Queen \$1.25, 25 or more -----	\$1.00
1 tested Queen \$2.50, 25 or more -----	2.25
1 select tested Queen, \$3.00, 25 or more -----	2.50

NUCLEI

Two-comb regular Nuclei -----	\$3.60	Twenty-five or more -----	3.45
-------------------------------	--------	---------------------------	------

PACKAGES

One 2-lb. package, \$3.60; 25 or more ---	\$3.45	One 3-lb. package, \$5.00, 25 or more ---	4.75
Add price of queens wanted when ordering above packages.			

PATTERSON & WINTERS, Jourdanton, Tex.

References: Adams Nat. Bank, Devine, Texas; Atascosa State Bank, Jourdanton, Tex.

Iowa Apiarist's Reports

Owing to the abnormal conditions which prevailed in the printing trade last year, the report of the State Apiarist was delayed. Two reports, for the year 1919 and the year 1920, are now being sent out at the same time. Both of the reports contain papers on practical beekeeping subjects which should be of interest to every honey producer. Those interested can probably secure copies by addressing F. B. Paddock, State Apiarist, Ames, Iowa.

The Best Cold Cure

Take a handful of clean bran and season it with a pinch of salt. Pour just enough hot water over it to wet the bran; stir until the bran is moistened, then cover and set in a warm place for half an hour. Over the mash pour a quantity of the best extracted honey. This honey-bran combination eaten with celery, will do much to keep the digestive organs in good working condition and to hasten the elimination of waste matter, thus preventing as well as curing colds.

J. D. Kaufman, Montana.

Yellow Sweet Clover

Yellow sweet clover, in a normal season, is the best of honey plants. In a week's time after the first crop is cut for hay the field is a yellow carpet of bloom within an inch of the ground, and the bees gather honey until the heavy frosts come. Every lover of honey ought to grow yellow sweet clover. Beside honey, he will get feed to produce meat and butter fat. There are a lot of farmers here who have it, but I don't know of any who want to get rid of it. They all want to grow more of it.

Much that is printed in Government Bulletins regarding sweet clover refers to the white variety (*Melilotus alba*) and is confusing to the man with the yellow kind. *Melilotus officinalis*, the yellow blossom variety, should be cut as low as alfalfa, and not until it is well in bloom. It should be shocked green.

J. D. Kaufman, Kalispel, Mont.

Apples and Potatoes

Census reports show the apple production for the United States for 1919 was 136 million bushels. Washington heads the list with a production of 21 million bushels, New York is second with 14 million bushels and Virginia third with 8 million bushels. Arkansas is a close fourth.

New York leads in potatoes with 32 million bushels, Minnesota ranks second and Wisconsin third, with Maine and Pennsylvania next in order. There were two bushels of potatoes produced in the United States to every one of apples.

QUALITY OF HONEY INFLUENCED BY SOIL

I am writing to ask if you have ever heard that sweet clover which grows on land that shows alkali does not make as good honey as that grown on sweet land?

I am asking this question because our honey is made from clover grown on the last-named kind of soil, and so

many people here claim it is better in both flavor and color than some other honey produced here. I cannot understand why, unless alkali has a bad effect.

Any information you may be able to give me will be appreciated.

A. L. Arnold,
Riverton, Wyoming.

The above question was referred to Frank Rauchfuss, who is familiar with conditions in the Rocky Mountain region. He replies as follows:

"We do not know what there might be to the claim that sweet clover on alkali land produces a different honey than that of sweet clover on sweet land. You are perhaps aware that large portions of the West have soil of an alkali nature, sometimes to such an extent that a white, and in other instances a black, deposit is formed on the surface of the soil, destroying most of the vegetation. The common name for this alkali, therefore, is white and black alkali. The black alkali seems to be the most destructive to vegetation; furthermore, most of the river waters are more or less alkaline.

"When I was up in northern Wyoming recently, I found that the water supply of these various towns which was taken out of the rivers, was so strongly impregnated as to make it rather a poor article to use right along. The quality of the honey in the Riverton district, when properly produced, is certainly very fine, but not any better than that which is produced in certain portions of Colorado, Utah and Montana; and for that matter we might also include Nevada."

F. Rauchfuss.

B. F. Smith, Jr., of Fromberg, Mont. comments as follows:

"We have two yards located in Rock Creek Valley, where there is no alkali, and also two yards in Clarke Fork Valley, where it is all alkali, and as far as we can see or taste there is absolutely no difference. You might verify this by getting a sample of honey, say from Lovell, Wyo., and one from around Bozeman, Mont. But you should specify it being produced in new combs, as N. E. France told me in 1896 that to get the light honey it must be raised under these conditions. Mr. A. D. Hardy, of Powell, Wyo., reports to me that new capings from old combs will discolor honey, and if this is true what will old combs do? We produce nothing but comb, so perhaps we might be mistaken."

B. F. Smith.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 20th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

BEEES AND QUEENS

YOUR GOOD DEMAND—Don't lose it by failing to supply your customers. ATWATER HONEY HELPS.

FOR SALE—100 colonies Italian bees in two-story 8-frame dovetailed hives, full sheets foundation with combs, 200 five-eighths inch extra wide 8-frame supers for 4x5 plain sections; 100 pounds medium brood foundation.

Geo. H. Frey, Gen. Deliv., Cedar Rapids, Ia.
TRY my Caucasian or Italian 3-frame nuclei at \$6 each, with tested queens, next spring delivery.
Peter Schaffhauser,
Havelock, N. Car.

QUEENS AND BEES—High grade. Day-old and untested in Thompson safety cages, 2-lb. packages. Circular ready.
James McKee, Riverside, Calif.

FOR SALE—3,000 pounds of bees for spring delivery at pre war prices. Rosedale Apiaries, Big Bend, La.

J. B. Marshall and H. P. LeBlanc, Props.
THREE-BAND ITALIAN QUEENS—Two-frame nuclei with queen, \$5 (no disease).
W. T. Perdue & Sons, Fort Deposit, Ala.

WE are booking orders now for colonies and packages of Italian bees. Write for prices. Satisfaction guaranteed.

Van Wyngarden Bros., Hebron, Ind.
QUEENS, package bees and nuclei. We solicit your advanced orders, large or small, for 1922, and can give you the same prompt service in future as in past. Our early queens in March, ready for your unpacking time, shipped on short notice. Untested queen, \$1.50; tested, \$3; 2-pound package bees, post paid, \$4.80; by express, f. o. b. Sandia, 2-pound package, \$3.75; 2-comb regular nuclei, \$3.75. Add price of queen wanted; 25 cents less from price on queen with package bees and nuclei; either pure strain golden or three-band.
Dr. White Bee Company, Sandia, Texas.

TWO-POUND PACKAGES 3-banded Italian bees with queens, \$5.25 each; 10 or more, \$5 each; one-fourth down books orders. Satisfaction is my guarantee.
J. J. Scott, Crowville, La.

PACKAGE BEES, \$1.50 per pound; untested Italian or Carniolan queens, \$1.25 each. See larger Adv. Free circular.
J. E. Wing,
155 Schiele Ave., San Jose, Calif.

FOR SALE—Package bees and queens. See large Ad. in this Journal.
H. B. Murray, Liberty, N. C.

DON'T FORGET, a card will bring our descriptive circular and price list of our Italian queens, drones and bees.
R. V. Stearns, Brady, Texas.

QUEENS BY THE POUND—Look for my display Ad. in this issue.
W. H. Moses, Lane City, Texas.

DIEMER QUEENS, Liberty, Mo., \$1.00 each. Guaranteed.

PACKAGE BEES AND NUCLEI—Booking orders 1922 delivery. See ad. elsewhere, or write.
M. L. Nisbet & Bro.,
Bainbridge, Ga.

SEE my large display advertisement on page 29.
Jes Dalton, Bordelonville, La.

BEEES AND QUEENS—Vigorous leather-colored Italian queens, famous three-banded stock; also bees in packages. Two-pound package with queen, \$6; three-pound package with queen, \$7.25. If you wish a purely-mated queen in a package, add \$1. Three-frame nucleus with queen, same price as a three-pound combless package with queen. Ninety per cent of queens I sell are purely mated. These queens from select breeding queens from recently imported stock, and every queen is young, and laying, when taken from the hive for shipment. These queens, from highly-bred stock, cannot be surpassed. I consider my queens a credit to the bee-keeping world. Deposit of 25 per cent required with order, balance payable just prior to shipment. My bees are healthy. Unsolicited testimonials vouch for satisfaction given in past seasons. Shipments begin about April 20, or first days of May, depending upon weather and season conditions. If bees do not arrive safely, I shall replace them or refund money.
C. M. Elfer, St. Rose, La.

FOR SALE—Spring delivery, 1922, 2 lbs. bees and young three-banded Italian queen, \$5. Special price on 2-lb. queenless packages. Health certificate with each shipment. Satisfaction guaranteed.
J. L. Leath, Corinth, Miss.

BEEES—100 colonies for sale.
E. F. Atwater, Meridian, Idaho.

LARGE, HARDY, PROLIFIC QUEENS—

Three-band Italians and goldens, pure mating and safe arrival guaranteed. We ship only queens that are top notchers in size, prolificness and color. After June 1, untested queens \$1.50 each, 6 for \$8, 12 or more \$1.40 each, 25 or more \$1.25 each. Tested queens \$3 each, 6 for \$16.

Buckeye Bee Co., Zoarville, Ohio.

BURLESON ITALIAN BEES and QUEENS in 2 and 3-lb. packages; 1 2-lb. package with select untested queen, \$5; 25 or more, \$4.50; 1-3 lb. package with select untested Italian queen, \$6.25; 25 or more, \$5.75. Ten per cent with order, balance 10 days before shipment; 1,000 colonies to draw from. Can deliver the goods on time. Safe arrival and satisfaction guaranteed.

T. W. Burleson, Waxahachie, Texas.

BLUE RIBBON QUEENS—Carniolans and Italians. Order now for early spring delivery. Geo. W. Coltrin & Son, Mathis, Tex.

WHEN they say they have better, we know different. We defy the world to beat our new method. We are not boasting of selling thousands. We expect to furnish you all you want, if that is 30,000. Untested, \$1; tested, \$2.

F. M. Russell, Roxbury, Ohio.

GOLDEN QUEENS, GOLDEN—1922 price: untested, one, \$1.25; doz., \$12. Select untested, one, \$1.50; doz., \$15; tested, one, \$2.50, doz., \$27.50. Pure mating and safe arrival guaranteed in United States and Canada. Book orders now.

Tillery Bros., Georgiana, Ala.

FOR SALE—Early package bees, nuclei and queens. Shipping season from March 1 to June 1. We handle 1,800 colonies. No disease.

Loveitt Honey Co.,

602 N. 9th Ave., Phoenix, Ariz.

BOOKING ORDERS for spring delivery. Queens, package bees and nuclei. The reliable A. I. Root strain. Golden and leather-color Italians. Virgins, 60c; untested, \$1.50; select untested, \$2; tested, \$2.50; select tested, \$3. Circular free.

A. J. Pinard,

440 N. 6th St., San Jose, Calif.

THREE-BAND QUEENS, packages and nuclei, any size. Special orders solicited. Absolutely free from disease. Delivery as early as March 25. Special discount on May delivery if booked this month. Proposition to Farm Bureaus and County Agents. Write for prices and terms.

Tupelo Honey Co., Columbia, Ala.

NUCLEI and Cypress hives for 1922 delivery—Three-frame black or hybrid bees, Italian queen, \$5.00; 3-frame Italian bees and queen, \$5.50; 3-frame black bees and queen, \$4.00; 3 pounds black bees and Italian queen on comb of honey, \$5.50. Cypress hives complete; 5 10-frame, \$12. Full depth supers complete, five 10-frame, \$7. Prices on other sizes upon request. I own the timber and manufacture the hives, with no middlemen involved. Book orders now, so you can name shipping date to suit yourself. One-third with order to guarantee acceptance. Reference: Toombs County Bank, Lyons, Ga. Good farm for sale cheap; 660 acres. Terms to suit purchaser.

Otto Diestel, Elza, Ga.

BEES in 2-pound packages, our specialty for 1922. Now booking orders See ad elsewhere for prices. Caney Valley Apiaries

J. D. Yancey, Mgr., Bay City, Texas.

QUEENS OF QUALITY for 1922—3-banded Italians only. After April 15, untested, \$1.25; tested, \$2. Satisfaction guaranteed.

P. L. Williams, Ft. Deposit, Ala.

WE are now booking orders for spring delivery of our queens and package bees. Write us for prices.

Graydon Bros.,

Rt. 4, Greenville, Ala.

FOR SALE—400 stands clean bees, extracting equipment; good location; for reason write.

The Oregon Apiary Co.,

Nyssa, Oregon.

BEES AND QUEENS from my Carolina apiaries, progeny of my famous Porto Rican pedigreed breeding stock.

Elton Warner, Asheville, N. C.

HARDY ITALIAN QUEENS, \$1 each.

W. G. Lauver, Middletown, Pa.

BEES AND QUEENS from my New Jersey apiary.

J. H. M. Cook,

1414 84 Cortland St., New York City.

FOR SALE—Leather colored Italian queens, tested, until June 1, \$2.50; after, \$2. Untested, \$1.25; 12, \$13. Root's goods at Root's prices.

A. W. Yates,

15 Chapman St., Hartford, Conn.

BOOK YOUR ORDERS for QUEENS now— Goldens, \$2; tested, \$3; banded, \$1.50; tested \$2.50; six or more, 10 per cent less.

Clover Leaf Apiaries, Wahoo, Neb.

BEES BY THE POUND, ALSO QUEENS— Booking orders now. Free circular gives prices, etc. See larger ad elsewhere.

Nueces County Apiaries, Calallen, Texas,

E. B. Ault, Prop.

WE are now equipped to handle your early spring orders for package bees and queens, especially bred for the production of honey. Our queens are bred from the best stock obtainable, and will give satisfaction. Safe arrival guaranteed. Write for prices and terms.

Sarasota Bee Co., Sarasota, Fla.

SWEET CLOVER SEED

YOUR GOOD DEMAND—Don't lose it by failing to supply your customers. ATWATER HONEY HELPS.

HUBAM—The annual white sweet clover. Produced under cultivation. Guaranteed genuine. Hulled, scarified and re-cleaned \$2 per pound, prepaid. Reduction on quantities.

Blair Brothers, Rt. 4, Ames, Iowa.

FOR SALE—Hubam clover seed; genuine Hughes strain (scarified). Free sample.

Jas. H. Kitchen, Rt. 5, Springfield, Ohio.

HUBAM CLOVER SEED, cypress bee hives and supplies for sale.

J. Tom White, Dublin, Ga.

BIENNIAL White Sweet Clover Seed, cleaned and scarified, \$10 per bushel; small lots 25c per pound.

Frank C. Pellett, Hamilton, Ill.

HONEY AND BEESWAX

YOUR GOOD DEMAND—Don't lose it by failing to supply your customers. ATWATER HONEY HELPS.

FOR SALE—Light golden honey, mostly clover, put up in new 60-lb. cans; single case (120 lbs.) 12c per lb.; 5 cases or more 11c per lb., f. o. b. Merritt.

J. H. Corwin, Merritt, Mich.

FOR SALE—No. 1 comb honey, 24 sections to case, six cases to a carrier, \$36 per carrier. Also 3,000 pounds clover honey packed in ten-pound pails net per case of six pails, \$10.

J. D. Beals, Oto, Iowa.

FOR SALE—8 cases clover honey which has been through the capping melter. Fine for cooking, baking, etc.

J. D. Beals, Oto, Iowa.

FOR SALE—Honey in 5 and 60-lb. cans.

Van Wyngarden Bros., Hebron, Ind.

FOR SALE—Extracted honey; clover 15c per pound, amber 10c, two 60-lb. cans to case; amber in barrels 8c; in 5-case or 5-barrel lots 5 per cent discount; in 10-case or 10-barrel lots 10 per cent discount.

H. G. Quirin, Bellevue, Ohio.

HONEY—Atwater sells fine alfalfa-clover honey, extra strong cases, case of two 60-lb. cans, \$12; case of twelve 5-lb. pails, \$7.80, all f. o. b. here. Ten-lb pails all sold out; plenty of the others on hand.

E. F. Atwater, Meridian, Idaho.

FOR SALE—Spanish needle-heartsease honey; fine body and flavor. Write for price. State quantity wanted.

F. W. Luebeck, Rt. 2, Knox, Ind.

FOR SALE—white clover honey in 60-lb. cans at 15c per pound.

John Olson, Davis, Ill.

FOR SALE—Fancy white clover honey, thoroughly ripened, 5-lb. pails \$1 each, 12 to case; 10-lb. pails \$1.95 each, 6 to case, or \$1.90 12 to case.

F. E. Valesh, Couderay, Wis.

EXTRA FANCY clover honey, well ripened, in new cans, per case 120 lbs., net \$15.50.

Sample 20c.

Edw. A. Winkler, Joliet, Ill.

EXTRA FINE white sweet clover honey; case of two 5-gallon cans, 120 pounds, \$17; one can, \$9; five cases, \$82. Sample 10c. Want to hear from parties who need honey for a good retail trade.

C. S. Engle,

1327 E. 23rd St., Sioux City, Iowa.

FOR SALE—Two tons amber baking honey.

F. W. Luebeck, Rt. 2, Knox, Ind.

CLA-FONY quality buckwheat honey (liquid or crystallized), 5-lb. pails, 65c each, 15 to case.

Clarence Foote, Delanson, N. Y.

HONEY FOR SALE—In 60-lb. tins, water white orange, 14c; water white clover or white sage, 13c; extra light amber sage, 11c; New York State buckwheat, 10c, for immediate shipment from New York.

Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE—White and amber extracted honey; also comb honey. Write for prices. State quantity wanted.

Dadant & Sons, Hamilton, Illinois.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering.

Fred W. Muth Co.,

204 Walnut St., Cincinnati, Ohio.

SUPPLIES

YOUR GOOD DEMAND—Don't lose it by failing to supply your customers. ATWATER HONEY HELPS.

FOR SALE Cheap—176 8-frame dovetailed comb-honey supers for 4¼x4¼x1¾ sections, 45 new in flat with sections and starters, section holders and slotted separators in all supers; 58 8-frame dovetailed hives; some new in flat. For full list and prices write.

Geo. H. Frey, Gen. Deliv., Cedar Rapids, Ia.

FOR SALE—Standard 10-frame hives with reversible bottoms, metal covers and inner covers; without frames, \$3 each. Bodies \$1.25 each. Give me a trial order.

Thomas Cordner, Sparta, Wis.

WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.

The Colorado Honey Producers' Association,

Denver, Colo.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.

American Bee Journal, Hamilton, Ill.

FOR SALE

YOUR GOOD DEMAND—Don't lose it by failing to supply your customers. ATWATER HONEY HELPS.

FOR SALE—Hive bodies, frames, etc.

C. H. Hodgkin, Rochester, Ohio.

FOR SALE—To close partnership, 160 colonies Italian bees, 4,000 combs, metal-spaced frames, full sheets wired. Will sell any part of equipment. No disease. Dec. 16, 1921.

E. Bradley, Trenton, Ky.

WHO NEEDS 1,000 first-class brood combs in wire Hoffman frames? No disease. Have a surplus of medium brood foundation in 50-pound boxes, cheap.

C. S. Engle,

1327 E. 23rd St., Sioux City, Iowa.

FOR SALE—Three-banded Italian queens, \$1 each.

Alabama Bee Co.,

Rt. 1, Fort Deposit, Ala.

FOR SALE—Good second-hand 60-lb. cans, two cans to a case, boxed, at 60c per case f. o. b. Cincinnati. Terms cash.

C. H. W. Weber & Co., 2163 Central Ave.,

Cincinnati, Ohio.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.

Superior Honey Co., Ogden, Utah.

DAMAGED BOOKS CHEAP—We have several copies of the Langstroth-Dadant Honey-bee which are slightly damaged, which we will sell at just half price, only \$1.25 each. These books are as good as any for reading, but cannot be sold as new copies. This is a book of 575 pages and sells regularly at \$2.50. We also have a few damaged copies of the Dadant System of Beekeeping which we will sell at 60 cents each. The regular price is \$1.

American Bee Journal, Hamilton, Illinois.

WANTED

YOUR GOOD DEMAND—Don't lose it by failing to supply your customers. ATWATER HONEY HELPS.

WANTED—Honey, section, bulk comb and extracted.

Elton Warner, Asheville, N. C.

WOULD LIKE TO BUY some more good honey, some beeswax, and also maple syrup.

Paul Thomae, 1156 Third St., Milwaukee, Wis.

WANTED—Comb or extracted Spanish needle or white clover honey. Send sample and quote lowest price and how put up.

E. F. Fosse, Box 164, Marion, Ill.

WANTED—High grade extracted honey; must be clean and good cans and cases. Quote price. Merton Church, Highland Park, Ill.

WANTED—Clover honey for bottling purposes; must be finest quality honey, very light in color and not mixed with basswood. Write, stating what you have and lowest price. Longfellow Bros., Hallowell, Maine.

WANTED—Honey, section, bulk comb and extracted. W. A. Hunter, Terre Haute, Ind.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices. Superior Honey Co., Ogden, Utah.

WANTED—We have many calls from educators for copies to complete their files of the older Bee Journals. If you have complete volumes or miscellaneous numbers of any Bee Journals previous to 1900, write us, giving a list, and we will be glad to quote a price. Old bee books, now out of print, are also desirable. We act as a clearing house for this kind of materials. American Bee Journal, Hamilton, Ill.

MISCELLANEOUS

YOUR GOOD DEMAND—Don't lose it by failing to supply your customers. ATWATER HONEY HELPS.

CALIFORNIA WONDER CORN for seed. Greatest producer wherever grown. Shelled Spanish peanuts; save retail profits. James McKee, Riverside, Calif.

LEAGUE EMBLEMS—We still have a number of U. S. Beekeepers' emblems, buttons or pins, bronze or gold. Send 50 cents and get one. American Bee Journal, Hamilton, Ill.

SITUATIONS

YOUR GOOD DEMAND—Don't lose it by failing to supply your customers. ATWATER HONEY HELPS.

EXPERIENCE and fair wages given to active young man, willing to work, for help in well equipped beekeeping business of six hundred colonies. Season April to November. State occupation, weight, height, age and experience. The Pettit Apiaries, Georgetown, Ontario, Can.

WANTED—Single man, 20 years experience in beekeeping, wants position with some up-to-date beekeeper. Good man for right party. Only good clean parties need answer. "M," care American Bee Journal.

WANTED—Position—Young man, 20, wants position with commercial beekeeper for season of 1922; 3 years' experience in beekeeping on small scale. References furnished. Jos. C. Allen, Alpine, Ala.

REAL ESTATE

YOUR GOOD DEMAND—Don't lose it by failing to supply your customers. ATWATER HONEY HELPS.

BETTER FARMS on better terms, Alabama Line Lands. Best schools and highways; long growing seasons; low tax rate. If interested, write Farm Section, Chamber Commerce, 701 Bell Bldg., Montgomery, Ala.

FOR SALE—Small farm and ranch 213 acres for \$3,000. All under good fence, on running stream; 12 acres irrigated from spring; good bee locality. Easy terms. Oscar L. Lackey, Vance, Texas.

FOR SALE CHEAP—Stock farm of 360 acres, four good apiaries, 300 colonies of bees; land must go with bees. E. S. Frost, St. Louis, Mich.

QUEENS

Write for our catalog of high-grade Italian Queens. Pure mating and safe arrival guaranteed.



**JAY SMITH, Route 3
VINCENNES, IND.**

Price List

Before Aug. 1:
1 to 4, inclusive... \$2.50 each
5 to 9, inclusive... \$2.45 each
10 or more... \$2.40 each
After Aug. 1:
1 to 4, inclusive... \$2.00 each
5 to 9, inclusive... \$1.95 each
10 or more... \$1.90 each
Breeding queen, whole season, \$10.00 each
5 per cent discount on all cash orders received during January.

THAGARD'S ITALIAN QUEENS

Bred for Quality

Untested...\$1.50; 6, \$7.50; 12, \$13.50
Sel. Unt...\$1.75; 6, \$9.00; 12, \$16.00

Pure mating and safe arrival guaranteed. 1922 catalog free.

THE V. R. THAGARD CO.
Greenville, Ala.

Money and Satisfaction for You

Save one profit by buying direct from factory. Standard, Jumbo and Modified Dadant Hives in stock.

Write for catalog

Wanted to buy Comb and
Extracted Honey

Address

A. E. Burdick, Sunnyside, Wash.

Olds' Seeds

Go where you will you can't find better Seed Corn, Oats, Potatoes, Clover, Alfalfa or Timothy than ours. We've specialized in these seeds for years. We grow and handle them right.

Our Garden Seeds are no less reliable. No seed house has better. We are constantly improving our special strains and seeking the best for our customers.



"Olds' Catalog
Tells the Truth"

our slogan—is no idle boast. Write for a copy at once. Guides you in planning crops and making up seed order.

L. L. OLDS SEED COMPANY
Drawer 1 Madison, Wis.

SOUTHLAND QUEENS

Three-banded leather-colored Italians.

Packages and nuclei a specialty.

SPECIAL PRICES to Associations or beekeepers on large orders.

Write for circular.

Mating guaranteed. Safe arrival guaranteed. Replacements made at once.

Special attention given FOREIGN shipments.

Delivery April 15, or sooner.

Terms: 25 per cent down, balance before shipping.

THE SOUTHLAND APIARIES
Box 585. Hattiesburg, Miss.

QUEENS

that spell s-a-t-i-s-f-a-c-t-i-o-n, at prices pronounced r-e-a-s-o-n-a-b-l-e, our aim and achievement.

Prices of Queens for 1922:

	1	6	12
Untested	---\$1.50	\$ 8.00	\$14.00
Select untested	1.75	9.00	16.00
Select tested	3.00	16.00	30.00

HARDIN S. FOSTER, Columbia, Tenn.

SUPERIOR FOUNDATION

While the hum of the bees grows fainter, the hum of our machinery grows stronger, preparing for another enormous spring demand for Superior Weed Process Foundation

When buying secure the best

Manufactured by **SUPERIOR HONEY CO., Ogden, Utah**

ITALIAN BEES AND QUEENS

COMB PACKAGES AND NUCLEI FOR 1922

Backed by years of experience in building our apiaries to a high standard by breeding from the best, we are prepared to furnish bees and queens that satisfy, and solicit your orders guaranteeing safe arrival and satisfaction. Certificate of inspection accompanies each shipment. We have found from years of experience that bees shipped on comb invariably reach their destination in very best condition.

FULL WEIGHT PACKAGES

Booking orders now for shipment May 1, 1922. Terms 20 per cent cash with order.

EXTRA STRONG NUCLEI

PRICES—	1 or more	12 or more	25 or more
2-lb. package with young Italian queen.....	\$4.75	\$4.40	\$4.00
3-lb. package with young Italian queen.....	6.25	5.90	5.50
3-frame nuclei with young Italian queen.....	6.50	6.15	5.75

References:

First National Bank, Bainbridge, Ga.
Maddox Commission Co., Bainbridge, Ga.
Apalachicola State Bank, Apalachicola, Fla.

Members of

Florida State Beekeepers' Association.
Tupelo Honey Exchange,
Wewahatchka, Fla.

Apiaries, Ranletts Ldg., Fla.

M. L. NISBET & BRO.

P. O. Bainbridge, Ga.

Italian Bees, Queens and Drones for Sale

Write us for prices on

Package bees with or without queens. Nuclei, also with bees or queen added. Bees and queens by parcel post.

Drones.

A card will bring our free circular and price list without obligation on your part.

R. V. STEARNS

Brady, Texas

Hughes—HUBAM—Alabama

Grown where it originated, under direct supervision of H. D. Hughes, the original discoverer and distributor. Genuine. Uniform types. Early or late. Use discretion.

FREE A SAMPLE OF SEED OF THIS WONDERFUL CLOVER

Yields 6 times as much as other clovers.
Great for stock, either pasture or hay. Palatable. Very nutritious. Drought resistant. Best honey plant known. Makes your soil produce more.

HUBAM

growing seed of most wonderful clover ever discovered. Thoroughly tested. Can be grown anywhere. Recommended by farmers editors etc. Ask for booklet.

HUBAM CLOVER—WHAT—WHERE—WHY

ALABAMA HUBAM CLOVER ASSN
K BOX 61 - NEWBERN-ALA



FOR SALE

Our famous Italian bees in packages, 2 and 3-lb. packages with queens for sale; they are as good for honey gathering as any bees in the U. S. A.; they are as yellow and as gentle. Our bees have stood the test all through the U. S. A. and Canada; recommended far and wide. We are free from all brood disease. Our famous Root-Howe-Davis bees that have been bred and selected from a large number of yards, will please you. Try them. We give prices on request. Some of our Wisconsin customers have written that the packages received from us on May, 1921, gave 150 pounds of honey this year. Reference, Bank of Liberty, Liberty, N. C. **H. B. MURRAY, Liberty, N. C.**



Southern Headquarters Package Bees. Reliable Queens. Three-Banded Italian Only

We solicit your orders for 1922 shipping. We have the stock, equipment and experience necessary to give you prompt, satisfactory service. We have more than 1,000 big, healthy, hustling colonies of pure Italian bees to draw from. Write for our illustrated price list.

W. D. ACHORD, Fitzpatrick, Ala.

NUCLEI OUR SPECIALTY—PACKAGE BEES THREE BANDED ITALIAN QUEENS

Our BEES and our EXPERIENCE will give you prompt and satisfactory service.

One 2-frame nuclei, no queen, \$4; 25 or more, \$3.75; 50 or more \$3.50; 100 or more, \$3.25.

One 3-frame nuclei, no queen, \$6; 25 or more, \$5.25; 50 or more \$5; 100 or more, \$4.75.

Queens: One untested, \$1.50; 6, \$8; 12, \$15; 50, \$60; 100, \$100.

Tested queens, \$2.50 each.

Package bees, same prices as nuclei. Write for early order discounts from above prices and our guarantee on shipments. We will surprise you.

COTTON BELT APIARIES, Roxton, Texas

FOR YOUR 1922 REQUIREMENTS

We will quote you our new prices on your requirements of bee supplies. Send us your list. New catalog in January. Send for one.

AUGUST LOTZ COMPANY, Boyd, Wisconsin

IT'S HERE!

WE HAVE IT!

QUALITY BEE SUPPLIES

POLISHED SHIPPING CASES

One-piece covers and bottoms, glass and paper included, selling at cost prices, as follows:

24-lb., for 1½ sections, ----- \$30 per 100
12-lb., for 1½ sections ----- \$17 per 100

Write for illustrated catalog on our bee supplies.
We are always ready to serve you.

CHAS. MONDENG

146 Newton Ave. N. and 159 Cedar Lake Rd. Minneapolis, Minn.

BEE SUPPLIES

We are prepared to give you value for your money. Our factory is well equipped with the best machinery to manufacture the very A-best supplies that money can buy. Only the choicest material suitable for bee hives is used. Our workmanship is the very best. Get our prices and save money.

Eggers Bee Supply Mfg. Co.

Incorporated

510 WATER ST., EAU CLAIRE, WIS.

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

5 — Good — \$1 Magazines

Woman's World, (Monthly) Our Price
Good Stories, (Monthly) \$1.00
American Woman, (Monthly)
Mother's Magazine, (Monthly) ALL FIVE
The Farm Journal, (Monthly) FOR 1 YEAR

ORDER BY CLUB NUMBER 2801

A Dollar Bill will do—We take the risk

Send all orders to

Whitlock & Summerhays
25 North Dearborn Street, CHICAGO

1922 ITALIAN QUEENS

Untested \$1.20 ea, 12 or more \$1.00 ea.
Select Untested \$1.50, Tested \$2.00

PACKAGE BEES PRICED ON REQUEST
No Disease

D. W. HOWELL, Shellman, Ga. Box B5



America's Leading
Poultry Paper

Showing Champions in all Breeds

4 MONTH'S TRIAL
SUBSCRIPTION 25c

U. S. Stamps accepted. Practical
articles by foremost poultrymen.
80pp; 1 year \$1.00; 3 years \$2.00.
Poultry Tribune Dept. 6, Mt. Morris, Ill.

BEE JOURNAL COMBINATIONS

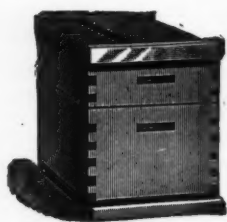
Knowing that our readers are interested in all beekeeping literature, we are glad to offer the different bee journals in combination with our own at a reduction that will be a saving

	Regular Price	With A.B.J. 1 year
Western Honey Bee	\$1.00	\$2.25
Beekeepers' Item	1.00	2.25
Dixie Beekeeper	1.00	2.25
Beekeepers' Review	1.00	2.25
Gleanings in Bee Culture	1.00	2.50

Canadian postage, 15 cents per year; foreign, 25 cents.

Prices quoted on all foreign bee publications on application.

AMERICAN BEE JOURNAL
Hamilton, Illinois



MR. BEEKEEPER—

We have a large plant especially equipped to manufacture the supplies that you use. We guarantee all materials and workmanship. We ship anywhere. We allow early order discounts and make prompt shipments. *Write for free illustrated catalog today*
We pay highest cash and trade prices for beeswax

LEAHY MFG. CO., 90 Sixth Street, Higginsville, Missouri
J. W. ROUSE, Mexico, Missouri **A. M. HUNT, Goldthwaite, Texas**

Annual White Sweet Clover Seed

(James or Alabama Strain)

Start right. Buy your seed from the home of this New Plant.

This clover was discovered growing in Alabama by our Mr. James, in 1919.

Our crop this year was harvested without rain, and we can furnish a very high grade of seed, absolutely pure, grown by us on cultivated lands.

We are offering a limited supply at \$2 per pound, delivered. This will be clean, hulled, scarified seed. Germination test must please you. Write for further information as to how to grow, etc.

F. A. James Clover Seed Co.
 Newbern, Alabama

BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

Send Us Your Inquiries
A. H. RUSCH & SON CO.
 Reedsville, Wis.

**Shrubs
and Trees**
 That provide Nectar for
 the Bees and Fruit for the
 household. No Cash with
 order. Get our Catalog TODAY.
PROGRESS NURSERIES
 1318 Peters Ave. Troy, Ohio

BEST GOLDEN ITALIANS

BEN G. DAVIS SPRING HILL,
 TENN.

1922 PRICES

PACKAGE BEES, with select 3-banded Italian Queens, delivered to your address via parcel post, postage paid by me.

PRICES:

1-pound package with young Italian queen	-----\$4.50
2-pound package with young Italian queen	----- 6.00
3-pound package with young Italian queen	----- 7.50
25 cents per package less for twelve or more packages.	

The high quality of my queens, combined with prompt service and reliability, justifies the above prices. Let me book your order now, with 10 per cent cash, balance just before shipping. Will send bees and queens on the day you name. Pure mating of queens, safe arrival, and satisfaction guaranteed.

JASPER KNIGHT, Hayneville, Ala.

SURE SERVICE

ROOT GOODS

Airco foundation, hives, frames, smokers, tin goods, jars and tumblers. Everything for the beekeeper.

Write for special prices.

December discount 4 per cent.

Shipment from factory or branch nearest you to save you money.

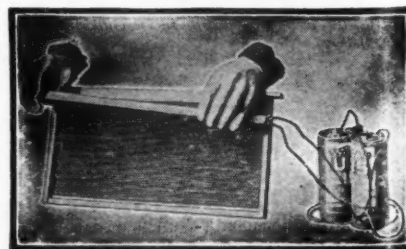
ORDER NOW.

HUBAM Clover Certified Seed

\$2.00 per pound.

THE SOUTHLAND APIARIES

Box 565. Hattiesburg, Miss.



ELECTRIC IMBEDDER

Price without Batteries, \$1.00
 Not Postpaid.

Actually cements wires in the foundation. Will work with dry cells or with city current in connection with transformer. Best device of its kind on the market.

Dadant & Sons, Manufacturers
 HAMILTON, IL.

QUEENS**PACKAGE BEES AND NUCLEI****QUEENS**

Have a special offer to Beekeepers Associations or groups of Beekeepers that can use a car of bees at a time 800 to 1000 packages. We are prepared to load two cars a week after April 5th, 1922. Free ticket to the party coming down to go back with the car or I can furnish a man. This is the best way, no transferring from one car to another, bees go through in 3 to 4 days.

Also special attention given to small orders.

1922 prices. Booking orders now. Safe arrival guaranteed.

1-lb. package \$2.25 each, 25 or more \$2.15 each.

2-lb. package \$3.75 each, 25 or more \$3.60 each.

3-lb. package \$5.25 each, 25 or more \$5.00 each.

2-comb nuclei \$3.75 each, 3-comb nuclei \$5.25 each.

Add price of queen wanted.

1 untested queen \$1.50 each, 25 or more \$1.30 each

1 tested \$2.25 each, 25 or more \$2.00 each.

1 select, untested \$1.70 each, 25 or more \$1.50 each.

1 select tested, \$2.65 each, 25 or more \$2.25 each.

One-fifth down with order, balance just before shipping, or 4 per cent discount for full remittance for December, 3 per cent for January orders.

E. B. Ault, Prop. NEUCES COUNTY APIARIES, Calallen, Tex.

Write for our red catalog with reduced price sheet

Reductions are from 10% to 35% off our spring and summer prices

Let us make your beeswax into foundation now, so you will have it ready early in the spring

We also render wax from old combs and slum gum

SEND US A LIST OF YOUR REQUIREMENTS IN BEE SUPPLIES

We sell the best possible goods at the lowest possible prices

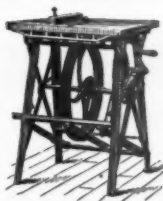
W. T. FALCONER MFG. COMPANY, Falconer, (NEAR JAMESTOWN) N. Y., U. S. A.

"Where the BEST Beehives come from"

BARNES' FOOTPOWER MACHINERY

Read what J. E. Parent, of Chariton, N. Y. says:

"We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work."



W. F. & JOHN BARNES
995 Ruby St., ROCKFORD, ILLINOIS

Our Honey Labels are Good Labels. Send for Catalog.

American Bee Journal, Hamilton, Ill.



The Engravings appearing in this publication are made by the

Waterloo Engraving & Service Co.
Waterloo, Iowa

Engravers, Electrotypers, Commercial Photographers,
Photo Retouchers, Designers

Write if you need designs of Signature Cuts, Letter Heads,
Labels, Etc.



HONEY and HUBAM

The words are synonymous

The nectar flow is abundant. Comes early and stays until late fall. Makes water-white honey, so coveted by honey producers. Also a boon to the orchardist, the stock raiser, the general farmer. Seed Sense, our monthly magazine, tells about it. Just say HUBAM to us and we'll put you on our list.

Buy your seed of this wonderful new annual white sweet clover early. Buy it from a well-established firm with a reputation for squareness. Price now is \$2 per pound, for certified seed of our own growing.

HENRY FIELD SEED CO.
SHENANDOAH, IOWA

BEES BY THE POUND

1-2 pound package with untested queen \$4.75
25-2 pound packages with untested queen \$4.25 ea.

Write for circular giving further particulars.

W. H. MOSES, Lane City, Tex.

SANCO BEES

with a reputation.

Three-banded Leather Colored Italians that stand the winter best of any known. Repeat orders mean Satisfied Customers. Let us book your order now with only 25 per cent down.

—1922 Prices—

2-frame nuclei with queen \$4.50 each
3-frame nuclei with queen \$5.50 each
Be a "SANCO" Satisfied Customer.
If once a buyer, you'll always be a customer.
Safe arrival guaranteed.

SANCO BEE COMPANY

J. B. SANDERSON, Prop., Fredericksburg, O.



CARNIOLANS

are the best of winterers, build up rapidly in the spring, are wonderful honey gatherers, are the least inclined to rob of any bees, and are no more inclined to swarm than Italians, if properly managed.

I have prepared a paper describing this race of bees more fully, the best methods of management for producing comb and extracted honey, my system of queen rearing, prices of queens, bees by the pound, etc.

IT IS FREE FOR THE ASKING

Get acquainted with the merits of this race of bees in making your plans for the coming season.

ALBERT G. HANN

Glen Gardner,

New Jersey.



Latham's Queens

Suit Other People Besides Latham



"The 40 queens arrived in fine condition. All beauties."

"Those queens you sent me beat anything I ever saw. My hives are full of bees."

"I am delighted with the queen you sent me."

"The 25 queens received July 1st are certainly fine."

"The queen I received from you has the greatest amount of brood of any queen in my yard, and I have queens from nine different breeders."

"We are delighted with the quality of stock you have sent us." (100 queens went here).

"The queen you sent me is a prize. I introduced her into one of my weakest colonies, and now she is laying in 20 combs. Nothing weak about that colony now."

"Your queens have been highly satisfactory in the past, so you see I am coming again. 'S' Suits-Me.'"

SHE-SUITS-ME QUEENS ARE LINE-BRED ITALIANS

Vigorous, prolific, and throwing workers that are snappy and hustling, they meet the need of the practical beekeeper. They are dependable, and their presence in your hives means profit to you.

You will wish some of the daughters of the queens selected as breeders for the season of 1922.

Fifty full colonies and seven hundred nuclei devoted exclusively to my queen-rearing business.

PRICES

Untested, May 15 to June 15, \$2 per queen; if 10 or more go in one shipment, \$1.75 each.

After June 15 and until November, from 1 to 9, \$1.50 each; from 10 to 24, \$1.30 each; from 25 to 49, \$1.25 each; from 50 to 99, \$1.20 each. 100 queens, \$115.

Tested queens, \$3 the entire season.

DISCOUNT—Upon all orders received prior to April 1, 1922, a discount of 20 per cent will apply.

TERMS—10 per cent of price must accompany order to insure discount and booking, and the remainder must be remitted before queens are shipped.

Send for price list of queens,
packages and nuclei



ALLEN LATHAM
NORWICH TOWN, CONN.



Packages for New England States a
specialty

Crop and Market Report

Compiled by M. G. Dadant

We asked the following questions of our reporters for the January issue of the American Bee Journal:

1. In what shape are bees going into winter quarters?
2. How many colonies are there compared to the same time last year?
3. How is honey moving? What per cent left on hand?
4. At what price is honey selling, comb and extracted, wholesale and retail?
5. Do you anticipate any trouble in disposing of your whole crop at prices as high as they are now before the new crop?

CONDITION OF BEES

There is a uniformity in reports of condition of bees which promises good wintering throughout the country. As a whole, bees went into winter quarters strong, with plentiful stores of good honey. Sections which may suffer through light stores if the beekeepers have not been forehanded, are the central western states of Indiana, Wisconsin, Illinois, Iowa, South Dakota and Kansas, and even in these some reports indicate crops of sufficient magnitude to insure ample winter stores.

With a hard winter there is a doubt in the minds of some Michigan beekeepers as to whether the amber honey harvested in the fall will winter their bees as well as the white honey which they generally have. This is also true in some other scattered localities which have had an unexpected fall flow this season.

NUMBER OF COLONIES

The number of colonies going into winter quarters this fall, as compared with those last fall, will probably show an increase of 10 to 20 per cent. Generally the number of colonies will remain the same, except for some larger producers, who expected very low prices for honey and ran largely for increase.

HONEY SALES

Honey is not moving quite as freely as a month ago, though the demand is still strong, more especially for light grades of extracted honey. Comb honey has been largely sold out in all localities east of the Mississippi River. This refers, however, to local honey, as the markets seem well supplied with western comb.

Nearly all sections report amount of honey remaining on hand December 15 as being from 10 to 25 per cent of the whole crop, with no difficulty of disposing of the remainder long before the new crop is available.

Sections showing the largest amount yet on hand are Idaho, Montana, Oregon, Washington, Louisiana, Arizona and New Mexico, where the amount left will probably total at least 50 per cent.

HONEY PRICES.

There has been no material change in prices since our last report was issued, though the very slow sale of comb honey has influenced some western producers to reduce prices in some instances. Extracted retail prices are generally in the neighborhood of \$1.15 to \$1.35 for 5-lb. pails and \$1.90 to \$2.50 for 10-lb. pails. One discouraging Washington report is to the effect that honey is retailing at \$1.35 per 10-lb. can, to the ruination of the

general honey market. Similar low prices come also from other scattered localities, though we hardly believe in so large a number of instances as in years past. It is our opinion that beekeepers are more generally endeavoring to secure a uniform price and one that will be remunerative.

Comb honey really shows a wider variation in prices than extracted, selling all the way from 25 cents to 45 cents at retail. One reporter was getting 20 cents for both comb and extracted.

Also in a jobbing way, comb shows a large variation, from as low as \$3.50 a case to \$6.50. The general average price would seem to indicate about \$4.50 per case for No. 1 f. o. b. western shipping point, with a price of \$6.00 being secured by the eastern beekeeper. Comb honey is moving very slowly compared with extracted. The demand from the consuming public is not brisk.

For a week or two during early December, the tendency seemed slightly downward on extracted. A few cars were offered as low as 7½ to 8½ cents f. o. b. shipping point, but the price has since advanced. It would be difficult to pick up much white alfalfa, we believe, at less than 8½ cents f. o. b. shipping point, while white clover seems to be almost off the market in a jobbing way. At least it would likely command a price of 12 to 14 cents.

Amber honey is still plentiful and not high, owing to the influence of the large importations, yet the tendency is towards a better demand, and possibly a little shorter supply.

AMOUNT OF HONEY CARRIED OVER

Not over one or two reports suggested a carry-over of honey into the new crop year, while many were already out of honey and the majority saw no reason to doubt the ready sale of the balance of the crop early in the new year. Even the western comb honey men do not seem to be worried and expect a ready sale of the balance of the crop without any material price reductions.

The Texas crop is almost all disposed of. The Southeast is well sold out.

An interesting report comes of the British honey market as reprinted by the U. S. Bureau of Markets for December 1, to the effect that our honey is selling at a 20 per cent lower price than honey from New Zealand, chiefly from the fact that American firms have no selling agency there. This results in all American honey going into the hands of speculators who resell. A remedy should be found.

Generally speaking, reports would indicate that the eastern beekeeper is rather underselling the car lot western producer of comb honey, with a tendency to force the market downward, while the western producers, on the other hand, offer their car lots of extracted at such a price as to force down the price for the easterner. No doubt the whole of the eastern crop could have been sold at \$2.50 in 10-lb. cans. Yet how could it be sold so when packers and dealers were able to buy best white honey at a price of 8 to 10 cents, freight paid? Many do not yet have any idea of costs, and do not know that retail prices should be 100 per cent over lowest jobbing prices, to leave ordinary margin of profit to all concerned.

We still lack efficient distribution of actual cost figures on marketing.

OUR CROW

Will be sent you for the asking. This is our 1922 booklet with prices and twenty pages on selecting a strain of bees, rearing queens and packing and shipping bees. It tells you the good points to look for in a strain of bees and how.

FOREHAND'S THREE BANDS THE THRIFTY KIND

have stood the tests of America's best apiarist for thirty years. It briefly tells of the growth of our business since 1892.

This little booklet will be interesting and helpful to all interested in apiary culture. A copy will be sent you free.

W. J. FOREHAND & SONS, Ft. Deposit, Ala.

NUCLEI FOR SALE—1922 PRICES

Remember that in buying our nuclei you are not only getting two pounds of bees, but three frames of brood, which, when hatched, will double the size of the colony.

Note what these large beekeepers say: "I have no hesitation in recommending you as to your ability to put up bees for shipment, or as to your business integrity. Of the 225 nuclei sent to date, every one came through alive and in fine condition."—R. F. Holtermann, Ontario, Canada.

"Nuclei arrived in fine shape; made 100 lbs. clover honey each. Book me for 100 next spring."—G. F. Saunders, Hornby, Ontario, Canada.

H. J. Eisaman, of East Springfield, Pa., states: "While visiting in Mr. R. F. Holtermann's part of the country this fall, I noted the splendid showing your bees had made. Book me for 30 nuclei for May 1."

PRICE LIST OF OUR GOODS

3-frame nuclei Italian bees with Italian queen	\$5.50 each
3-frame nuclei hybrid bees, with guaranteed pure Ital. queen, \$5 each	
3-frame nuclei black bees, with black queen	\$4.00 each
4-frame nuclei black bees (without queens), fine for building up weak colonies	\$4.00 each
Cypress hives, complete, crate of 5	\$12.00
Medium brood foundation at 65c per pound.	

Terms: One-fourth down to guarantee acceptance. Safe arrival and satisfaction guaranteed. Certificate of inspection will accompany each shipment. Will start shipping April 10, 1922.

A. R. IRISH, Ludowici, Ga.

PRINTING

Our specialty shop is equipped to serve the needs of the beekeeper. Stationery, Shipping Tags, Circulars

Honey Labels a specialty

Send for catalog

Advertise your business by using high-class printed matter

AMERICAN BEE JOURNAL, Hamilton, Illinois

QUEENS
THREE-BAND ITALIANS

PACKAGE BEES

QUEENS
SILVER GRAY CARNIOLANS

Western headquarters for PACKAGE BEES and QUEENS. Orders booked with 25 per cent deposit, balance just before shipping. Deliveries start April 1. Safe arrival guaranteed of bees within 5 days of shipping point, queens anywhere in U. S. A. or Canada. Free circular for the asking.

1-pound package.....	\$2.00 ea. 10 or more \$1.75 ea.	1 untested queen.....	1.25 ea. 10 or more	1.20 ea.
2-pound package.....	3.50 ea. 10 or more 3.00 ea.	1 select untested.....	1.50 ea. 10 or more	1.40 ea.
3-pound package.....	5.00 ea. 10 or more 4.50 ea.	1 tested.....	2.00 ea. 10 or more	1.80 ea.
	1 select tested.....	2.25 ea. 10 or more	2.00 ea.	

References by permission: First National Bank of San Jose; Security State Bank, San Jose; Gleanings in Bee Culture, Medina, Ohio; American Bee Journal, Hamilton, Ill.; Western Honey Bee, Los Angeles.

Write for prices in large lots. Breeders, extra selected and tested for breeding, \$5.00

J. E. WING
155 Schiele Ave. SAN JOSE, CALIF.


OLD RELIABLE THREE-BAND ITALIANS



Booking orders now for 1922. Queens ready April 1
Read the following letter:

Next season I will want more of your Italian queens, as I am very well pleased with the ones that I have gotten from you.

One of the reasons I want your queens is because I saw just how you rear your queens when I visited your apiaries in the spring of 1920. As I have been a queen breeder, I feel that I know how the best queens should be reared. I feel that I can truthfully say that you have the best and most complete outfit for queen-rearing that I have ever seen. Your plan of selecting only the large well-built cells to give to your mating nuclei also took my fancy. I saw colonies that were headed by your breeders with about two hundred pounds of honey in the supers. I was so favorably impressed that I gave you that year's order for queens.

Your queens have made good here, produced some very strong colonies that got the honey. I have used several of them for breeders and so has one of my friends, whom I let have a few of your queens. He thinks they are the best queens that he ever bought. I take every opportunity to recommend your queens to my beekeeper friends.—C. S. Engle, Sioux City, Iowa.

Nearly every beekeeper who has visited our apiaries has become a customer. There must be a reason.

Will book orders for one-fourth cash, balance just before delivery. Safe arrival guaranteed in the United States and Canada.

Prices April, May and June:

Untested	\$1.25 each; 25 or more, \$1.00 each	Tested	\$2.50 each; 25 or more, \$2.25 each
Select untested	\$1.50 each; 25 or more, \$1.25 each	Select tested	\$3.00 each. Circular free.

JOHN G. MILLER 723 C Street Corpus Christi, Tex.

SUPERIOR ITALIAN BEES

Special offer on 3-frame nuclei. Write us for prices on what you need, whether one or a car load.

CYPRESS BEE SUPPLIES

Order a sample and be convinced of the SUPERIOR quality.

Dovetailed Hive Bodies in lots of 100, 60c each.
Covers and Bottom Boards in lots of 100, 50c each.
Hoffman Frames, \$50 per 1,000.
Quotations on special orders.

THE STOVER APIARIES, MAYHEW, MISSISSIPPI

QUEENS**BEES BY THE POUND
FOR 1922****QUEENS**

You who have tried our bees and queens know their good qualities. Those who have not tested them we suggest their giving us a trial order. Our thousands of satisfied customers testify to their superior traits. We are now booking orders for 1922 delivery, 10 per cent cash with order. No disease, safe arrival and satisfaction guaranteed.

PACKAGES BY EXPRESS

1-lb. packages, with queens, \$4.00 each; 12 or more, \$3.75 each.
2-lb. packages, with queens, \$5.50 each; 12 or more, \$5.00 each.
3-lb. packages, with queens \$7.25 each; 12 or more, \$6.75 each.
By parcel post 10 per cent extra on above.
1½-lb. package, Canadian Special, with queens, by mail, \$5.00 each.
Select untested queens, \$1.50 each; 12 or more, \$1.40 each.
Select tested queens, \$3.00 each; 12 or more, \$2.75 each.

We do not guarantee safe arrival of bees going to Canada by express. The largest sized packages we can ship by mail to Canada are the 1½-lb. size, as per above.

M. C. BERRY & CO.
HAYNEVILLE, ALA., U. S. A.

An Acceptable Gift**OUR BACKDOOR NEIGHBORS**

BY FRANK C. PELLETT

A book of stories of common wild creatures which never fails to please the children as well as the grown-ups. These stories are the kind that one loves to read again and again.

Price \$1.50 postpaid.

AMERICAN BEE JOURNAL, Hamilton, Ill.**BEEKEEPERS WE MANUFACTURE DOVETAILED HIVES, HOFFMAN FRAMES, SECTIONS AND SHIPPING CASES**

Our hives are made of best grade White Pine, cut accurate and smooth to standard measure. Sections are made of Basswood polished on both sides. There are no better made.

We carry a complete line of everything used in the apiary. Our shipping facilities are as good as can be found anywhere. We want your business. We guarantee prompt and satisfactory service. Price list free.

MARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.**PACKAGE BEES FOR 1922**

We Specialize on Three-band Italians Bred for Business.

A 2-pound package of our hustlers with a select untested queen for \$5; 25 or more, \$4.75 each. Special prices on large lots. One-fifth cash books your order. Order early and make sure of shipping date. We do not accept more orders than we can fill promptly.

CANEY VALLEY APIARIES, Bay City, Texas
J. D. YANCEY, Mgr.

**Books on Beekeeping**

First Lessons in Beekeeping, by C. P. Dadant. 167 pages, 178 illustrations. Cloth \$1.

Dadant System of Beekeeping, by C. P. Dadant. 118 pages, 58 illustrations. Cloth \$1.

The Honeybee, by Langstroth and Dadant. 575 pages, 229 illustrations. Cloth \$2.50.

Outapiaries, by M. G. Dadant. 125 pages, 50 illustrations. Cloth \$1.

1000 Answers to Beekeeping Questions, by C. C. Miller. 276 pages, illustrated. Cloth \$1.25.

American Honey Plants, by Frank C. Pellett. 300 large pages, 155 illustrations. Cloth \$2.50.

Practical Queen Rearing, by Frank C. Pellett. 105 pages, 40 illustrations. \$1.00.

Productive Beekeeping, by Frank C. Pellett. 326 pages, 134 illustrations. Cloth \$2.50.

Beginner's Bee Book, by Frank C. Pellett. 179 pages, illustrated. Cloth \$1.25.

Beekeeping in the South, by Kenneth Hawkins. 120 pages, 58 illustrations. Cloth \$1.25.

AMERICAN BEE JOURNAL
HAMILTON, ILL.

PORTER BEE ESCAPE SAVES HONEY TIME MONEY



For sale by all dealers
If no dealer, write factory
R. & E. C. PORTER, MFRS.
Lowistown, Illinois, U. S. A.
(Please mention Am. Bee Journal when writing)



CYPRESS by TEST Substitutes by TALK



The PROOF?—Two Letters FROM BEEMEN:

"Our correspondent makes serious complaints against ——— and MAKES A PLEA FOR CYPRESS as a BEEHIVE MATERIAL. We hope you will look into this matter," (Etc.)—and here's another:

"Mr. ———, of ———, just came into the office. He informs us that they tried a car of CYPRESS LUMBER last year for the first time, and are so well pleased with it that they are ORDERING ANOTHER CAR for use in making HIVE BOTTOMS."

Is there value to you in a endurance test of 51 years in greenhouse sash? It is reported to us that sash made of heart Cypress by a prominent greenhouse contractor in Chicago, and placed in position in a greenhouse at Des Plaines, Ill., in 1868, are **Still Doing Service.**

It will serve you as well and save you the nuisance and expense of repairs and replacements.

The argument backed by such facts cannot be answered by mere talk. Ask the manufacturer or contractor who wants to give you a "substitute" for Cypress to cite you an endurance test of 30 to 45 years to the credit of the so-called "substitute."

That is no more than a fair precaution on your part—good, ordinary business sense.

Write us for Vol. 1 of the Famous Cypress Pocket Library with Full U. S. Government Report on "The Wood Eternal"

SOUTHERN CYPRESS MFRS.' ASSOCIATION

1251 POYDRAS BUILDING, NEW ORLEANS, LA.

1251 GRAHAM BUILDING, JACKSONVILLE, FLA.

FOR QUICK SERVICE, ADDRESS NEAREST OFFICE

DO YOU USE ALUMINUM HONEYCOMBS? IF NOT, WHY NOT?

Each comb is in itself a valuable asset to any apiary. It is the only comb which enables BEEKEEPERS TO OBTAIN ALL THE HONEY without waiting for the bees to draw out foundation. THEREBY SAVING TIME AND MONEY.

We can prove that no practical BEEKEEPER can afford to be without the ALUMINUM HONEYCOMB

In a recent issue of a National Bee Publication the following question and its answer appeared:

- Q. What is the total cost of a fully drawn out wax comb?
A. The minimum cost of drawing out a wax comb is 50 cents.

PRACTICAL BEEKEEPERS are buying ALUMINUM HONEYCOMBS because they

- | | |
|---|-----------------------------------|
| Cannot be destroyed by moths or rodents | Prevent loss by melting |
| Make extracting of honey easy | Increase production |
| Control production of drones | Last forever with reasonable care |
| Can be sterilized | Cost no more than wax combs |

THE DIAMOND MATCH CO., Apiary Dept., CHICO, CAL.

Sole distributors for DUFFY-DIEHL, Inc., Pasadena, Cal

1922 PRICES

Compare them with last year's prices. Here are a few examples

	1921 Price	1922 Price
5 hive bodies with frames	\$ 12.25	\$ 8.00
5 hives with metal covers	26.25	18.00
5 supers, 4¼x1⅞	8.10	4.75
Frames, per 1000	112.00	70.00
Sections, per 1000	22.00	15.00

Note the reduction of from 25 to 40 per cent
Early order cash discount for January, 3% additional

In spite of this great price reduction, Root Quality is now better than ever before, and is constantly being further improved

Brief History of the Honey Extractor

The first crude honey extractor was invented by Hruschka, of Venice, Italy, in 1865. In 1869 A. I. Root constructed the first metal extractor with revolving reel and stationary can. This was called the Novice extractor, and at that time was a great improvement over any other extractor in use. Then came the Cowan extractor with swinging comb pockets, shortly followed by the Root Automatic, with pockets reversed mechanically, with the reel at rest. Finally, in 1919, after years of experimenting, the Root Full Speed Reversing Extractor was perfected, and after two years of actual testing among all kinds of adverse conditions, it has proved to be the fastest and sturdiest machine ever built. Last season it withstood an overspeed test of 350 R. P. M. without injury to fragile combs.

AIRCO COMB FOUNDATION

The foundation with perfect cell base and made by improved refining process—is manufactured not only at Medina, but also at Council Bluffs, San Antonio, Los Angeles, and Ingersoll, Ontario, Canada.

Our 1922 catalog, with the new reduced prices, is out. If you haven't yet received a copy of this handsome new edition, send for a copy at once.

Get your orders in early and save delay. There is a Root branch or dealer near you which will give you prompt service and save you high transportation expenses. Make use of our Free Information Bureau.

The A. I. ROOT COMPANY MEDINA, OHIO

New York
Philadelphia
Chicago

Indianapolis
St. Paul
Norfolk

New Orleans
Syracuse
Savannah, Ga.

"52 Years in the Bee Supply Industry."